

# HITCHCOCK'S *Machine Tool* BLUE BOOK

FOUNDED

MAY 1937 173

1903

HARDINGE Ball Bearing Bench Lathe Unit



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1" Collet Capacity—9" Swing—Four Smaller Sizes.

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HARDINGE BROTHERS, INC., - ELMIRA, N. Y.  
CHICAGO - NEW YORK - PHILADELPHIA - DETROIT - HARTFORD  
Sales Representatives in All Principal Cities

PUBLISHED AT 508 SO. DEARBORN ST., CHICAGO

# Low Priced Dry Cutting HACK SAWS

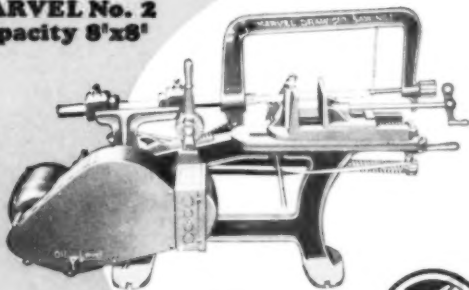
In automatic production saws, band saws, high speed cutting off equipment and giant hydraulics, MARVEL leadership is proverbial. In the less spectacular equipment, the small low-priced, dry-cutting hack saws too, MARVEL dominates the field—80% in use are MARVELS.

These economical general purpose saws No. 1 and No. 2 are sturdier, with heavy rigid saw frames, hold blades at greater tension—assure straight cutting. All controls are set in front for convenience and safety, and frame slides in "V" bearings that have screw take-up to compensate for wear. They are in every way "more saw for the money." Equipped with unbreakable MARVEL High-Speed-Edge Blades these dependable Hack Saws can be counted on to keep producing hour after hour, day after day.

Send Quickmail Coupon No. 5 for Catalog.

**MARVEL No. 1**  
**Capacity 4"x4"**

**MARVEL No. 2**  
**Capacity 8"x8"**



**ARMSTRONG-BLUM MFG. CO.**

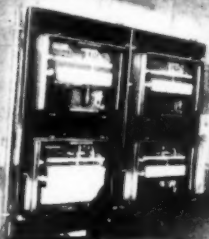
*"The Hack Saw People"*

341 N. Francisco Ave.,

CHICAGO, U. S. A.



# LESS BREAKAGE



WITH  
**WELDON**  
DOUBLE END  
END MILL

*Every tool made under  
Controlled Heat Treatment*

## **LESS BREAKAGE Because—**

1. Weldon uses high speed steel up to its own high specified standards, steel carefully checked chemically and microscopically.
2. Weldon endmills have a cupped end and rugged formed teeth, designed for strength and free cutting.
3. Heat treated by technically trained men, aided by the most modern time and temperature controlled hardening equipment.

Let the Tool Itself Prove It!  
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PAT. PEND.

The  
**WELDON**  
TOOL CO.

321 FRANKFORT AVE.  
CLEVELAND, OHIO

*Pioneers in  
Fast Spiral  
Double-end End Mills*

# Low Priced Dry Cutting HACK SAWS

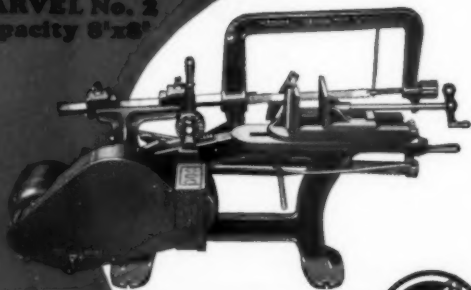
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Send Quickmail Coupon No. 6 for Catalog.

**MARVEL No. 1**  
**Capacity 4"x4"**

**MARVEL No. 2**  
**Capacity 6"x8"**



**ARMSTRONG-BLUM MFG. CO.**

*"The Hack Saw People"*

341 N. Francisco Ave., CHICAGO, U. S. A.





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**WELDON**  
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The  
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TOOL CO.  
125 CLEVELAND AVE.  
CLEVELAND, OHIO

# Spring tempered COLLETS

## Order From Stock

Scientifically heat treated to a true spring temper, "Rivett Mark" collets resist wear and hold their spring longer than collets of any other make. As standard equipment on all makes of lathes and millers, (see Rivett Bulletin 100B) they may be ordered for immediate delivery from the following stocks —

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R. E. Ellis Engineering Co.  
202 W. Washington Blvd.

DETROIT  
Charles A. Strelinger Co.  
122 E. Larned Street

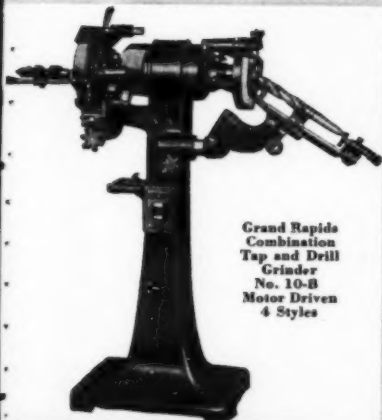
BOSTON  
Rivett Lathe & Grinder Inc.  
12 Riverway Road, Brighton

# RIVETT

LATHE & GRINDER INC.  
BRIGHTON BOSTON, MASS.

To save time and trouble, use **QUICKMAIL COUPON**  
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# COMBINATION TAP AND DRILL GRINDER



Grand Rapids  
Combination  
Tap and Drill  
Grinder  
No. 10-B  
Motor Driven  
4 Styles

This Grand Rapids Grinder does the work of two machines. It is rugged and fast enough for production grinding, occupies very little floor space, and is inexpensive to buy. Capacity, Drills:  $\frac{1}{8}$  to  $1\frac{1}{2}$ ". Capacity, Taps: No. 6 to  $1\frac{1}{2}$ ".

## Get Rid of Your Tap Troubles and most of your TAP COSTS

If you use taps and drills and would like to eliminate breakage arising from improper grinding—would like to save the waste which results from breakage and too frequent grinding—would like to have your tools cut with about half the power usually required—would like to save half the time now spent in grinding—would like to have your taps and drills stay sharp twice as long—would like to eliminate torn and stripped threads in your tapped holes and have the thread just right—in short, if you want to get rid of your tap and drill troubles and most of your tool cost—investigate this Grand Rapids Combination Grinder.

**Write for Complete Information TODAY**  
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MANUFACTURED BY

**GALLMEYER & LIVINGSTON CO.**  
303 STRAIGHT AVE. GRAND RAPIDS MICH.

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R E Ellis Engineering Co  
505 W Washington Blvd

DETROIT  
Charles A. Strelinger Co.  
140 E Larned Street

BOSTON  
Rivett Lathe & Grinder Inc  
18 Riverview Road, Brighton

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Tap and Drill  
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No. 10-B  
Motor Driven  
4 Styles

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## Get RID of Your Tap Troubles ... and most of your TAP COSTS

If you use taps and drills and would like to eliminate breakage arising from imperfect grinding—would like to save the waste which results from excessive and too frequent grinding—would like to have your tools cut with about half the power usually required—would like to save half the time now spent in grinding—would like to have your taps and drills stay sharp twice as long—would like to eliminate torn and stripped threads in your tapped holes and have the thread just right—in short, if you want to get rid of your tap and drill troubles and most of your tool cost—investigate this Grand Rapids Combination Grinder.

**Write for Complete Information TODAY**  
**Use Quickmail Coupon No. 72.**

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## COLLET AND FEED

**Collets for your Lathes and  
Milling Machines**



**All types and sizes carried  
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Collets for your lathes and milling machines when you want them . . . instantly . . . promptly! **HARDINGE** Collets—recognized for accuracy and durability since 1890—are held in stock in sufficiently large quantities in Elmira, Chicago, New York, Detroit and Los Angeles to insure immediate delivery at any time.

This prompt service includes **HARDINGE** Collets for American, Burke, Cataract, Flather, Hendey, LeBlond, Monarch, Porter - Cable, Pratt & Whitney, Rockford, Sebastian, Sidney, South Bend, Sundstrand, Van Norman and all other lathes and milling machines.

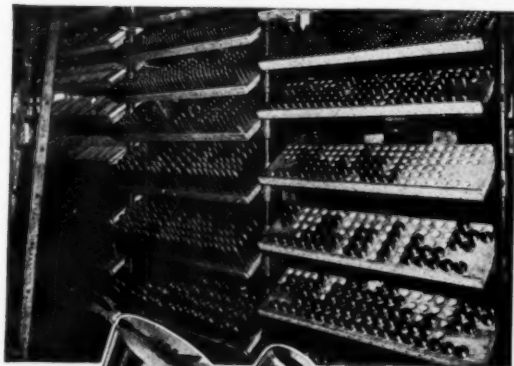
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**—ALWAYS SPECIFY HARDINGE COLLETS—**

**HARDINGE BROTHERS, Inc. . . . ELMIRA, N. Y.**

# D FINGER SECTION

**Collets and Feed Fingers for your Automatic and Hand Screw Machines**



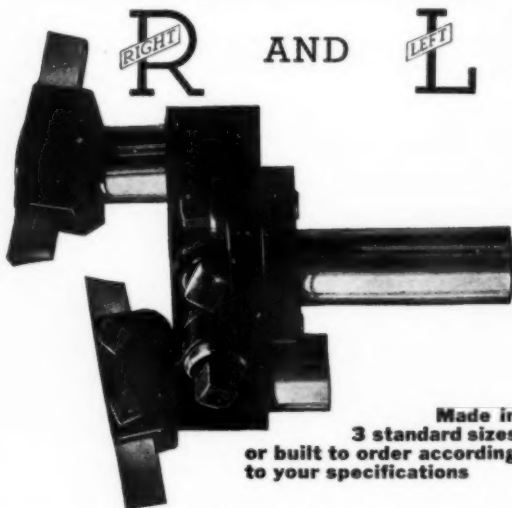
**Standard sizes in stock  
for immediate delivery**

Typical MORRISON quality and quick delivery are planned to meet with the satisfaction of all users of Collets, Feed Fingers and Pads for Brown & Sharpe, Cleveland,

Cone, Gridley, National Acme, New Britain, Davenport and all other automatic screw machines. MORRISON Collets also for Bardons & Oliver, Foster, Garvin, Pratt & Whitney, Warner & Swasey, and all other hand screw machines.

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MORRISON MACHINE PRODUCTS, Inc., ELMIRA, N. Y.**



Made in  
3 standard sizes  
or built to order according  
to your specifications

## **Save On Your Set-Up Costs With This Combination Tool**

By using various adjustments, one R & L turning tool can be made to perform a variety of operations, singly or together, thereby saving not only tool costs but time required for setting up machines. Extremely fine adjustments are provided both on the tool and on the pressure of the burnishers.

*Ask for complete details*

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**R AND L TOOLS**

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# Turning Tool



Entire tool is made  
of heat — treated  
alloy steel

## **Easily Changed In 10 Seconds For Right Or Left Hand Work**

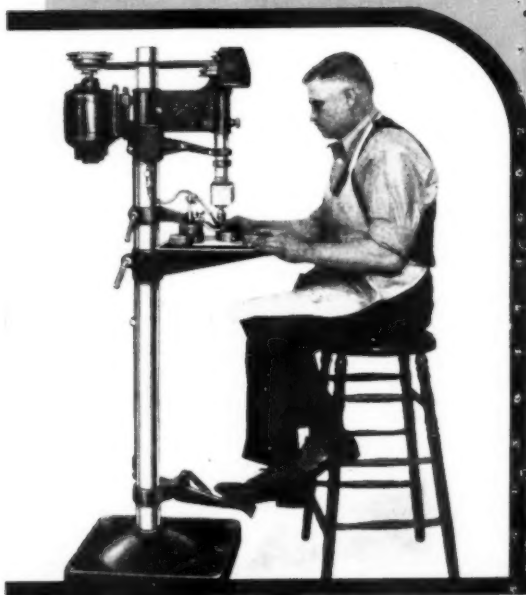
Speed in making set-ups is essential to economy. An R & L Turning Tool can be assembled and adjusted quickly for almost any kind of turning work. Tantalum carbide faces on the backrest act as a burnisher, eliminating rollers and misalignment due to roller wear and producing a highly polished surface.

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**Nicetown, Philadelphia, Pa.**

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THE NEW "Buffalo"



**BUFFALO**

161 MORTIMER ST.,

*Branch Engineering Offices in Principal Cities*

# UN C I N G

## **No. 15 TAPPER**

**CAPACITY BETTER THAN  
40 HOLES PER MINUTE**

This tapper has everything that you need to cut threads accurate to size, and also to cut production time. The result: better work, less spoilage, and lower production costs.

You secure all of these advantages with the new "Buffalo" No. 15 Tapper because when you buy a "Buffalo" you get—a Good Spindle—a Good Reverse Clutch—the Right Tap—and Automatic Tapper Lubrication. You don't have to spend a third of your tapping time oiling the tap or "hunting the hole" with a loose and wobbly tap spindle.

Repeated tests on this new Tapper demonstrate that you can secure 10,000 or more tapped holes for one dollar.

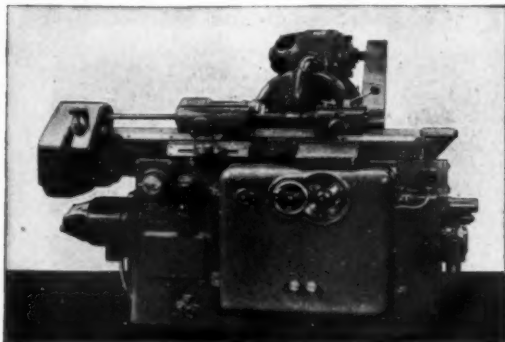
If that interests you, write today for complete information on the new "Buffalo" No. 15 Tapper. For convenience, use Coupon No. 8 when you write.

**FORGE COMPANY**

**BUFFALO, N. Y.**

*In Canada: Canadian Blower & Forge Co., Etobicoke, Ont.*

**"BACKED BY 18 YEARS OF THREAD GRINDING EXPERIENCE"**



**COMPLETE COVERAGE OF ALL  
THREAD GRINDING NEEDS**  
*WITH THE J&L AUTOMATIC THREAD GRINDER*



The J&L Automatic Thread Grinding Machine will grind right- and left-hand threads from 2 to 48 pitch inclusive; threads with single, double, triple, quadruple, or sextuple lead; and from the solid or from previously roughed threads.

With standard attachments the machine also will grind relief on taps and hobs, and jump flutes such as on inserted-blade taps. A hob grinding attachment permits grinding thread hobs without lead.

The J&L Automatic Thread Grinding Machine is designed for single piece or small lot runs, as well as for continuous production, where all the automatic features may be used to full advantage.

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**JONES & LAMSON MACHINE COMPANY**  
**SPRINGFIELD, VERMONT, U. S. A.**

**"SIMPLIFY"**  
your milling  
problems

**THE EKLIND  
UNIVERSAL  
MILLING  
DRILLING  
and BORING  
HEAD**

**is just the  
Attachment  
you need.**

The quill may be  
fed to depth at any  
angle—Then locked  
for succeeding mil-  
ling operations.



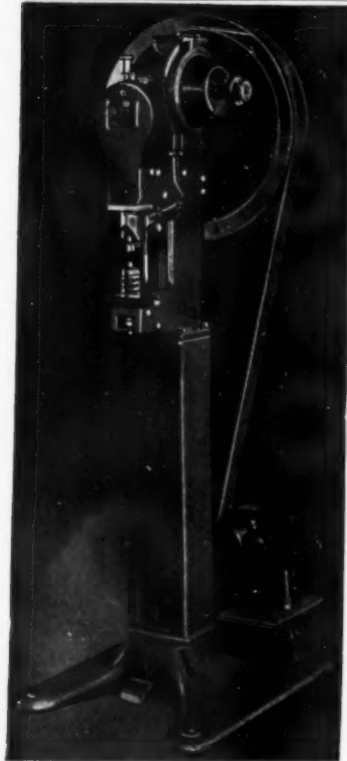
- Correct speeds for end mills ( $\frac{1}{8}$ "— $\frac{3}{4}$ ") and boring bars to  $1\frac{1}{4}$ ".
- May be adapted to all your Milling Machines and other tools such as boring Mills and Planers.
- 4 inch quill feed thru worm or rack.
- Ideal for **DIE MAKERS**(duplicating attachments available).
- Rigidly Mounted (3" dia. quill, spindle 22" long).

*Phone or write for trial or send Coupon No. 73 for literature*

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T. R. Wigglesworth Machinery

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Phone Madison 6300

**CLEVELAND**  
10465 Carnegie Ave.  
Phone Cedar 3545



- Accomplish joints of greater strength.
- Do it easily and efficiently.
- By using **SOLID RIVETS**, and by doing it on the

## RIVITOR

An advanced type of riveting machine which solves the problem of automatically feeding and setting solid rivets.

The saving in cost through the substitution of solid rivets, where a quantity of rivets is used, will pay for a RIVITOR within a short space of time. We shall be glad to send you a circular

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1905



1937



Type M P 5

**HIGH  
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MACHINES  
ONLY**

## **FLEXIBLE SHAFTS AND MACHINES**

**FOR THE  
METAL PATTERN SHOP  
MACHINE SHOP  
DIE SHOP and ALL  
METAL WORKING  
PLANTS**



Type M 6 C



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### **— ROTARY FILES —**

**THE MOST POWERFUL FLEXIBLE SHAFT MADE**



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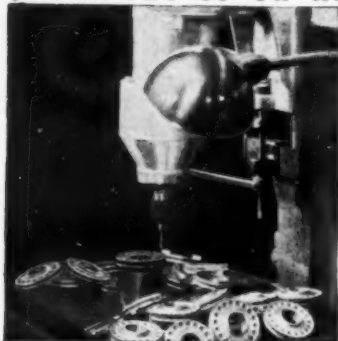
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**CHICAGO**

## QUICK SET-UP ON AN 18-HOLE TAPPING JOB



One of a series of case histories showing tough jobs made easy by The Haskins Tapper.

Material—3135 S.A.E. Nickel Steel.

Net Production—18 Holes per piece—160 pieces or 2880 holes per hour.

Size of Tap— $1/4"$ —28

Style of Tap—3-flute, cam face

Depth of Tapped Hole— $3/16"$

R.P.M. of tap "in"—1750

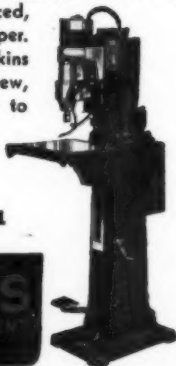
R.P.M. of tap "out"—3500

Previous Production — 70 pieces per hour

## LOW TOOL COST—LONG TAP LIFE

*Production by the old method—70 pieces per hour.  
By the Haskins Method—160 pieces per hour.*

● No clamps. No hold-downs. No complicated fixtures. Merely a simple revolving post. A tough job made easy by the foot-pedal control and balanced, no-float spindle of the Haskins Tapper. These and other exclusive Haskins features are fully described in our new, illustrated booklet. It will pay you to write for it. R. G. Haskins Company, 4654 West Fulton Street, Chicago.

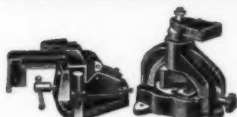


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## Angle Mitre Notcher and Angle Iron Bender

Capacity 2"x2"x $\frac{1}{4}$ " angle iron or smaller. A pair of tools that every shop ought to have. They are Nos. 50 and 51 in our catalog.

## No. 20 Ball Bearing Punch

Capacity  
 $\frac{1}{2}$ " thru  $\frac{1}{2}$ "  
iron



## No. 10 Ball Bearing Punch

Capacity  $\frac{3}{8}$  inch through  $\frac{1}{4}$  inch iron. Depth of throat 1 $\frac{1}{2}$  inch. Height of throat  $\frac{3}{8}$  inch. Furnished with one punch in any size from  $\frac{1}{8}$  to  $\frac{1}{2}$  by  $\frac{1}{32}$ .

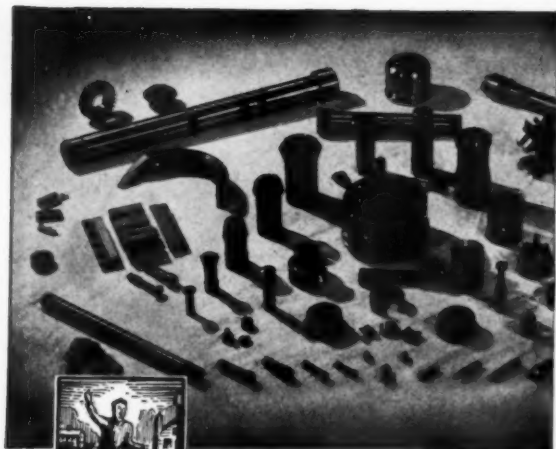
Whitney manufactures over 80 types of punches, shears and other equipment for metal working. Send Quick-mail Coupon No. 42 for a catalog of the complete line



## No. 4 Angle Iron Shear

Capacity 2"x2"x $\frac{1}{4}$ " angle  
iron or smaller

**Whitney Metal Tool Co.**  
**ROCKFORD, ILLINOIS**



*First Choice*

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From generation to generation, the popularity of "bikes" and roller skates has seen little change. As a result, the principal companies engaged in supplying these products "made for fun", have become a most substantial division of American industry. It is significant that the majority of the leading manufacturers of bicycles and roller skates are constant users of MODERN PRODUCTS. They have found—as have 1800 other MODERN customers—that when screw machine repair parts and tools are needed, MODERN PRODUCTS meet every requirement for dependable, efficient operation . . . for long life . . . for economy! You, too, will find it *always* pays to specify MODERN PRODUCTS.

**MODERN COLLET & MACHINE CO.**



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**"For Fun"**

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 No. 33? It's **NEW** from  
 cover to cover. **WRITE FOR**  
**IT TODAY!** Use Quickmail  
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**All Modern Collets  
 Have Double  
 Saw Tooth Serrations**

Nothing has contributed more to the efficiency of collet operation than the **MODERN COLLET Double Saw Tooth** serration—developed and furnished only by this company. This serration, as the name implies, presents a series of wide sharp surfaces that grip the stock so securely that all slipping, either radially or longitudinally, is entirely eliminated. Much less locking pressure is required, which means a saving in power and longer life for the locking mechanism.



**NOTE SAW TOOTH  
 BOTH WAYS**

**403 Salliotte St.,**

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*Better...by test*

LONGER LIFE



HEAT RESISTING

LOWER COST

STELLITE *Red Heat* CENTERS

The Scully-Jones Red Heat Stellite Center was developed for use on production machines... tests prove that Red Heat Centers will give many times the life of regular steel centers. Write for circular number 70 for description and prices.



**SCULLY-JONES & CO.**

1905 SOUTH ROCKWELL STREET  
CHICAGO, ILLINOIS

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## TAKE THE TOOL TO THE WORK

Haskins H-6, a heavy duty grinder with four speeds. Recommended for use with grinding wheels up to 6" in diameter by  $\frac{3}{4}$ " face.



*Polishing Stainless Steel to a mirror-like finish*

The Portability and Flexibility of Haskins Flexible Shaft Equipment enable the operator to quickly and effectively achieve results, especially in hard-to-get-at-places.

Haskins Quality Construction Flexible Shaft Equipment ensures long-life and dependability.

It insures you of meeting the increasing demand for speed in production with lower costs.

*Investigate Haskins Equipment. Send today for our catalog No. 44 — it's full of valuable information.*

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**R. G. HASKINS CO.**  
4654 W. Fulton St.  
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**Haskins**  
FLEXIBLE SHAFT EQUIPMENT



*Saved  
44 Hours  
on 6  
Pieces*

Milling  
Special  
Internal  
Cams

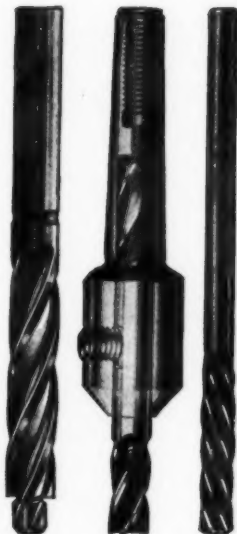
This is but one of the many examples of the utility of universal milling attachments that save setup time on hundreds of jobs.

## **PORTER-CABLE Milling Machine Attachments**

Built in seven types to fit every requirement on power or hand feed millers. Increase the range and production of your millers by asking for further details or a 15 DAY FREE TRIAL of one of these attachments today.

Stick Coupon No. 43 on your letterhead when you write.

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Salina St. Syracuse, N. Y.



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**W**HEN you order from PUTNAM, you get the finest precision tools that can be made, warranted both as to quality of material and workmanship. The "Hi-Speed" brand of cutting tools is recognized generally as a standard for accurate and economical performance—cutting faster and lasting longer.

## **PUTNAM HIGH-SPEED END MILLS**

are made in various styles and sizes to meet practically any requirement. Among those illustrated and described in the Putnam Catalog are: Long Double-End Mills, Two and Four Flute; Single-and Double-End Mills, also Two and Four Flute; Ball End Mills; Extra Long End Mills; Heavy Duty End Mills; Spiral Cut End Mills with Morse Taper Shanks, B. & S. Taper Shanks; Two Lipped End Mills; End Mill Holders, etc.

**Other  
PUTNAM  
Tools  
REAMERS  
COUNTERBORES  
SPECIAL TOOLS**

Complete details will be found in the **PUTNAM CATALOG—**  
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**THE PUTNAM TOOL CO.**  
2881 Charlevoix Ave.  
DETROIT, MICHIGAN

# ASK ANY TAPPING



- **NOTE**— This illustration shows the new Procunier No. 1 Style 'E' high speed precision tapping attachment equipped with the new "TRU-GRIP" tap holder. Illustration approx. 1/2 actual size.

HERE IS THE  
**NEW**  
**PROCUNIER**  
**"TRU-GRIP"**  
**TAP HOLDER**

**THE MOST SENSIBLE TAP HOLDER  
THAT EVER GRIPPED A TAP**

**SEND FOR FOLDER 436**



# **ATTACHMENT OPERATOR**

**WHY HE PREFERS THE NEW**

## **“TRU-GRIP” TAP HOLDER**

Furnished on Proconier style “E” high speed precision tapping attachments.

He will tell you—“The extreme smallness and lightness in weight permits more sensitive tapping at higher speed—increasing production. Eliminates inertia set up by the ordinary heavy tap holders—saving tap breakage. Gives more accurate results.”

*Why not prove them on your own tapping jobs.*

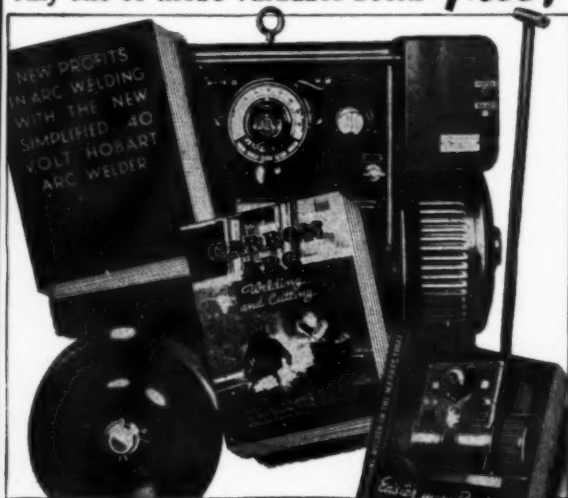
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**14 So. Clinton St.,**

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GET 30 DAYS TRIAL IN YOUR SHOP TO PROVE THAT  
THIS NEW 40 VOLT ARC WELDING WILL  
SAVE YOU HUNDREDS OF DOLLARS

Any one of these valuable books *Free!*



Don't let another day pass without investigating the tremendous profit possibilities that come from this new arc welding. Write for any of the three books you want and information on the liberal 30 Days Trial Offer. Hobart Brothers, one of the world's largest manufacturers of Arc Welders, Box TB-57, Troy, Ohio.

Use Quickmail Coupon No. 51.

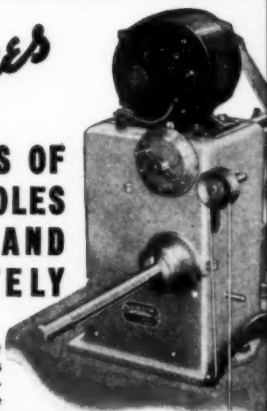
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**HOBART** *Simplified Welders*

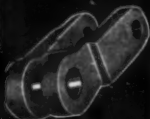
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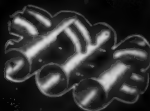
**ALL KINDS OF  
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write us about it. Tell us the size of the hole, kind of metal, amount of stock to be removed, tolerances, and send along a print if possible. We will be glad to tell you what this machine will do for you. Use Coupon No. 64 when you write.

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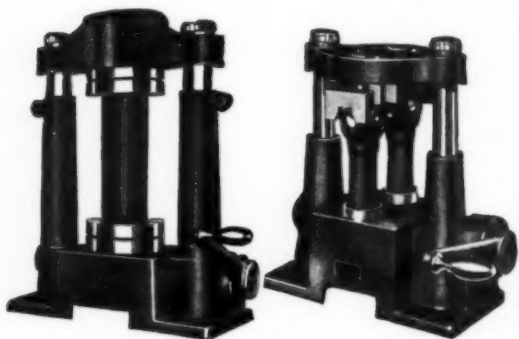
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## **A TYPE FOR EVERY JOB!**



The above jig is a Type C-12, tooled complete, for holding a 5" dia. tubing while lapping same. The tubing is held by clamping on end only, so as not to distort diameter of hole when finished.

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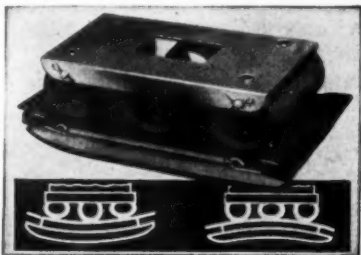
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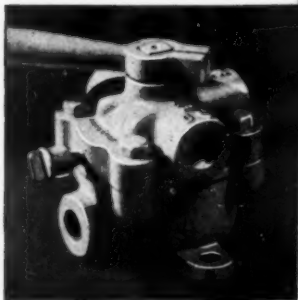
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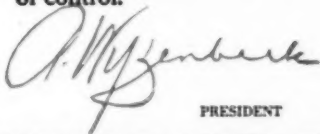
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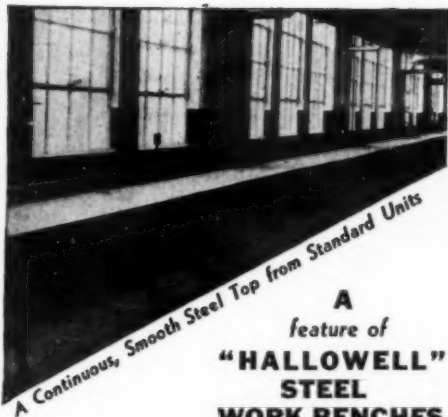
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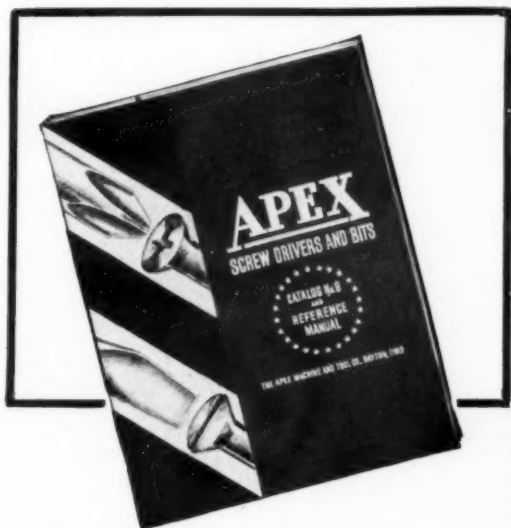
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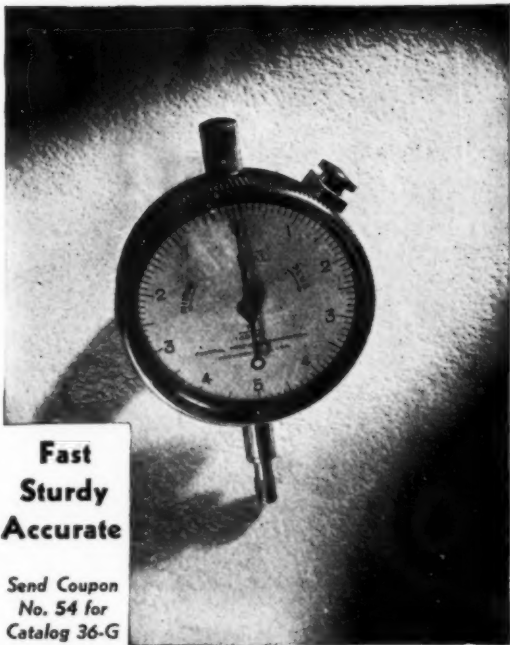


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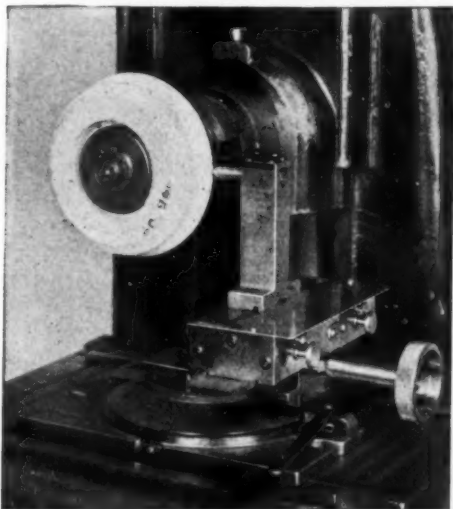
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# **The Vinco Angle Tangent to Radius Dresser** **for** **Internal, External and Surface Grinding Machines** *Patented June 5, 1934, Other Patents Pending*



## **Dressing Angles and Radii on a Surface Grinder**

One of the outstanding features of The Vinco Dresser is the basic patented principle of dressing angles and radii from the same axis without moving the diamond. Angles and radii are always tangent. Radii dressed are accurate, for the Index Plate rotates on precision hardened steel balls. The balls are assembled under load and travel in a hardened and ground race. Angles are always accurate because the Index Plate and Vernier are graduated on a Vinco Master Dividing Head to a one ten thousandth of an inch accuracy. The Vinco Dresser is precision made of the finest materials by highly skilled mechanics. Dresser parts subject to wear are hardened, rough ground, normalized, finish ground and lapped. Adjustable stops on the index plate permits the setting of the Dresser at any desired angle for production grinding. It saves 75% in dressing costs and eliminates all worry and uncertainty in dressing angles and radii on abrasive wheels.

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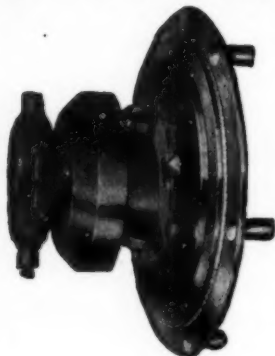
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**Job Time Cut 70% Over Estimate.  
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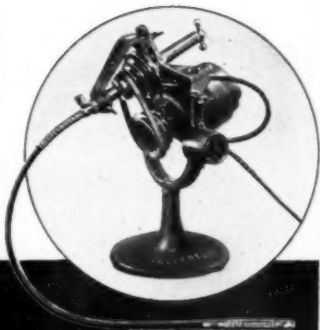
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Cuts up to 16 gauge hot rolled steel, speed as you feed. Other materials in proportion. Other portable Unishears with capacity up to 14 gauge, stationary Unishears with capacity up to 1/4" boiler plate.

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# HITCHCOCK'S *Machine Tool* **BLUE BOOK**

**Selected  
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**25,000  
Monthly**

**MAY, 1937**

**THIRTY-SECOND YEAR**

## **Going Up Again**

The March Index of machine tool orders, including domestic and foreign, stood at 211.6, which has been exceeded during the last year by December only. This shows a good recovery over the two previous months.

While foreign orders fell off somewhat, the gain in domestic business was sufficient to make a substantial increase in the total. However, foreign orders for the first three months of 1937 slightly exceeded the volume for the last quarter of 1936, and were equal to 37% of the total foreign business for the full year of 1936.

Orders placed during the early part of April show a still further improvement.

Labor troubles have caused some apprehension, but they have not affected business materially except in their immediate vicinity.

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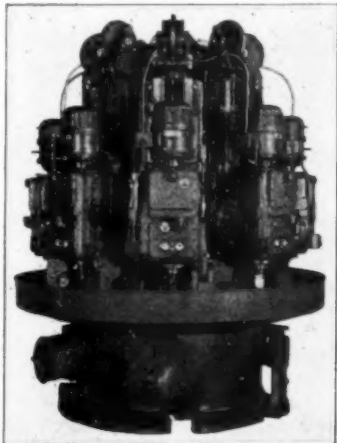
**508 S. Dearborn St.,**

**Chicago, Ill.**

*Consult the Classified Finding Index for your requirements*

## New Sundstrand 8-Spindle Vertical Lathe

Shown in Fig. 1 is an 8-Spindle Vertical Lathe, manufactured by the Sundstrand Machine Tool Co., 2531 Eleventh St., Rockford, Ill., which has several interesting features. This particular machine was supplied for rough turning and crowning cast-iron pistons as shown in Fig. 2, where the rough casting appears at the left and the turned piston at the right. This is but one of many applications which are possible with this type of machine.



**Fig. 1**

The machine has a heavy cylindrical base on which an octagonal column is rotatably mounted. An electric motor, mounted horizontally on the base, provides power for rotating the column through a speed reducer and a gear box which contains pick-off gears for changing the speed of column rotation.

On each face of the octagonal column is securely bolted a sub-base having ways on which a Sundstrand self-contained hydraulic unit travels vertically in an automatic cycle of rapid approach, feed, and quick return, which is governed by easily adjusted dogs. On the spindle of each hydraulic unit is a push button controlled, hydraulically-operated expanding chuck for holding the work piece. At the lower end of each sub-base on which the hydraulic unit slides is mounted a stationary tool block as indicated at "A" in Fig. 3.

*(Continued on Page 50)*



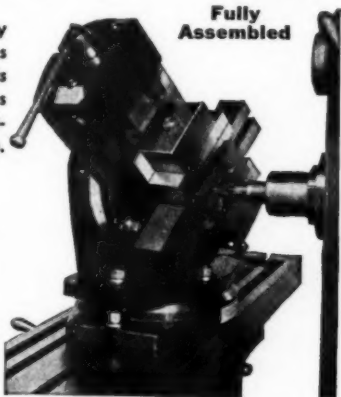
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**Precision Vises**  
**Swivel and Plain**  
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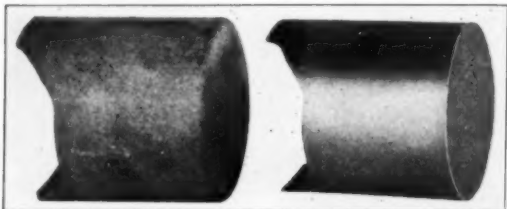
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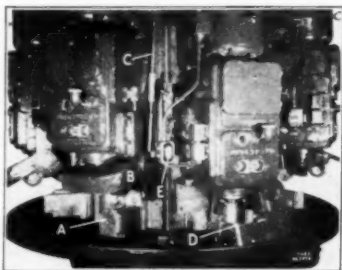
As the central column rotates, downward movement of the hydraulic unit feeds the work piece against the tool in block "A" to turn the outside diameter of the piston.



**Fig. 2**

Pivoted on the side of each hydraulic unit is a heavy bell crank "B" having its inner end connected to a stationary adjustable rod "C". This arrangement causes the bell crank to swing about its pivot as the hydraulic unit moves downward. At the right time in the cycle tool "D," carried on the arm of the bell crank, turns the curved head of the piston to the correct radius.

Operation is simple and easy. At the right of the operator's position is a four-button station in which one pair of buttons starts and stops rotation of the central column, while the other pair starts and stops the eight motors which



**Fig. 3**

drive the hydraulic units. In normal operation, rotation of the central column is continuous. As a hydraulic unit approaches the operator, he presses one of the buttons in control box "E" (Fig. 3). This

*(Continued on Page 52)*

# HERE'S PROOF of the power and speed of SKILSAW'S new low priced **DEFENDER DRILLS**

A.E. 1020  
COLD ROLLED  
STEEL



**1/2" DEFENDER**  
**\$35.00**

**THIS 1/2" DEFENDER DRILL**  
drilled a 1/4 in. hole in 1/4 in.  
stock in only 28 Seconds!  
drilled a 1/2 in. hole in 1/2 in.  
stock in only 40 Seconds!

**1/4" DEFENDER**  
**\$19.50**

**THIS 1/4" DEFENDER DRILL**  
drilled a 1/4 in. hole in 1/4 in.  
stock in only 13 Seconds!  
drilled a 1/2 in. hole in 1/2 in.  
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Never before such performance ... such quality construction and engineering in low priced drills! Bearings are ball and self-lubricating Oilite bronze. Motor has extra overload capacity for cool running and longer life. Special alloy steel gears, helical cut for quiet operation. Die-cast alloy frames for strength and lightness. Compare their specifications, power and speed and you will see why DEFENDER Drills are the biggest drill "buy" on the market.

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**SKILSAW INC**

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causes the hydraulically operated chuck to contract and release the work piece. Operator then substitutes a rough casting for the piece of work which has just been turned, and presses the other button in control box "E" which causes the chuck to expand and grip the new work piece securely. As the central column continues to rotate it passes a limit switch which starts the automatic operating cycle of the hydraulic unit on which the work piece has just been changed. As rotation of the column continues, the hydraulic unit feeds downward, turns and crowns the work piece, and automatically returns to its upper position. The column has now practically completed one revolution and the hydraulic unit is approaching the operator again for changing work pieces. In the meantime, the work pieces on the other seven hydraulic units have been changed successively as each one has passed before the operator in its turn.

Tungsten carbide cutting tools are used throughout and provision is made for a copious supply of strained coolant to carry away dust and chips as well as to keep the tool and work pieces cool. The hydraulic units, including their pumps and control valves, are standard products manufactured entirely by the Sundstrand Machine Tool Co. The units are entirely self-contained, each is independent of the others, and one or more units can be removed from the machine at any time without interfering with the operation of the remainder. The pistons machined measure  $3\frac{1}{2}$  inches diameter by  $4\frac{1}{4}$  inches long and are turned by this machine at a rate of slightly more than 400 per hour at 85% efficiency.

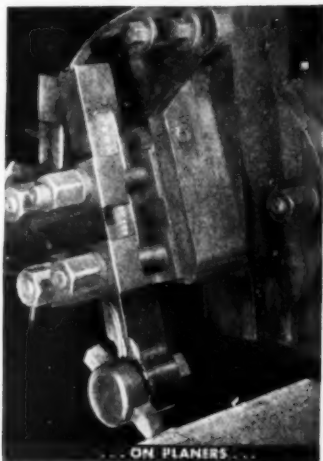
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Anaconda Wire and Cable Company, 25 Broadway, New York City, announce the publication of Bulletin No. C-35 entitled "Industrial Guide for Selection of Wire and Cable". Factors affecting the selection of wire and cable and a treatise on the importance of up-to-date wiring design in relation to avoiding industrial headaches are discussed. Colored lay-outs illustrate typical power supply circuits and tables covering practical limitations to be considered are included. Nine charts for recommending insulation and protective coverings to meet exposures and conditions of use are so arranged as to make for ease in selecting the wire or cable for different industrial circuits.

# ARMSTRONG

TRADE MARK REG. IN U.S. PAT. OFFICE

**NO JOB  
WILL  
SUPPORT  
WASTE**



... ON PLANERS ...

Today's competition, today's costs will tolerate no waste. Profits must come from greater efficiency. Where before tooling-up could be by trial and error, could be deliberate or faltering, present machine hour costs, man-hour costs, taxes and close figuring leave no cushioning margins. Today a delay can wipe out profit. There is no time for forging tools, for "tool dressing" and heat treating. Profitable work must start immediately, must proceed without interruption, must finish on schedule.

That is why today 96% of the Machine Shops use **ARMSTRONG TOOL HOLDERS**—permanent multi-purpose tools, that "Save all Forging, 70% Grinding, 90% High Speed Steel". With the complete Armstrong System you are *permanently* tool-up, are always ready to start *earning* on any operation on any lathe, planer, slotter or shaper; for tooling-up is reduced to the selection of the cutter and adjustment for clearance.

Build your Armstrong System, from the stocks of your nearest Mill Supply house. Send Quickmail Coupon No. 6 today for a B-35 Catalog.



**Armstrong Bros. Tool Co.**

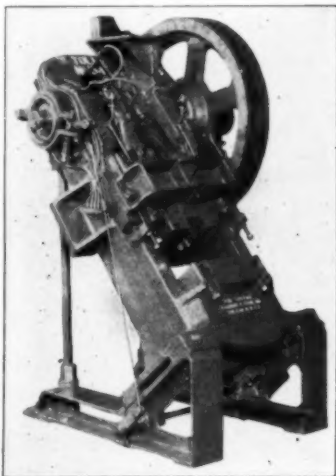
"The Tool Holder People"

308 N. Francisco Ave., Chicago, U.S.A.

## "Toledo" No. 54 Repunching Press

In large quantity production of field and rotor laminations, blanks are cut from full size sheets in a large automatic press for maximum economy of material. These blanks are then completed in suitable compound dies operated in repunching presses which must be exceptionally rigid and accurate. For this service The Toledo Machine and Tool Division, E. W. Bliss Company, 1420 Hastings St., Toledo, Ohio, is announcing a new design of their No. 54 straight sided, single crank press. It is of the flywheel type, with a direct connected motor drive to the flywheel by means of a silent pinion meshing with teeth on the flywheel. A 3 h.p., 820 r.p.m. motor is required to drive the press.

The frame is of compact one-piece construction, cast in chrome-nickel pearlitic semi-steel for maximum rigidity. Has  $2\frac{1}{2}$  inch stroke, distance bed to slide is 13 inches, full eccentric shaft and bolster with T-slots and poppets for inclined die setting. The shaft has a diameter of 4 inches at the bearings and  $6\frac{1}{2}$  inches at the pin. It operates at the rate of 65 to 90 strokes per minute. The fixed legs hold the press at an angle of 40 degrees with the vertical and support the press at the back by heavy steel rods.



The slide face measures 14 inches square, with a 2-

*(Continued on Page 56)*

# Gairing Counterbore Sets

*Made in seven sizes and three types.*

Do your men lose time finding the right sized counterbore or spotfacer when it could be at their finger-tips? For their convenience and to avoid those profit-stealing delays, consider one of these handy sets.

Regular tool rooms, die shops, machine shops and repair work is handled efficiently and expensive delays due to lack of proper cutting tools are greatly reduced.

Why waste time making suitable tool for your plant? Gairing Counterbore and Spotfacer Tools are available in the manufacturing of your product, or in the tool room or machine shop, a set of Gairing Counterbores is invaluable. Delays in preparing machine shift tools force idleness waiting men and machine.

Write for a catalog describing complete line of Gairing End Cutting Tools. Use Coupon No. 62

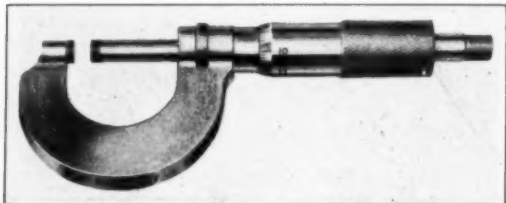
## THE GAIRING TOOL CO

820-25 WEST LEXINGTON ST. BOSTON, MASS.

inch diameter recess and T-slots. The slide, which has extra long and accurate gibbing, actuates a cam stripping device, adjustable for stripping at any point of the stroke. It also has an adjustment of  $\frac{1}{2}$  inch for the length of stem. Lubrication requirements are taken care of by a one-shot, manual operated grease device, along with sight feed oil cups.

## Carboloy Offers Micrometer Tipping Service

Carboloy Company, Inc., 2985 E. Jefferson Ave., Detroit, Mich., manufacturers of cemented carbides, announces a special micrometer tipping service available to all micrometer users. All that is necessary is to send your micrometer to the Carboloy Company who will tip the wear points at the ends of the anvil and spindle with Carboloy cemented carbides. The micrometer is



then accurately adjusted and returned, ready for immediate use.

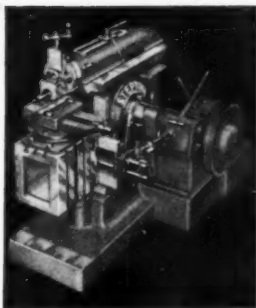
It is stated that the micrometers will hold to a closer degree of accuracy during a period of use that averages at least 50 times longer than with regular steel micrometers without Carboloy tips.

Formerly, Carboloy tips were applied principally on micrometers used as "masters" to check other gages. However, because of the low price the use of Carboloy tips has been extended to practically all applications. One standard price for tipping all micrometers, regardless of size, has been established. A descriptive leaflet may be obtained by writing the Carboloy Company at the address above.



# POWERFUL MACHINES

for HEAVY WORK

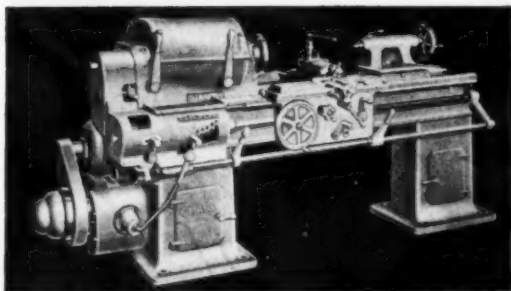


## STEPTOE SHAPERS

Force feed continuous lubrication, heavy construction and Timken bearings throughout insure rigidity, accuracy and long life. Centralized controls are within easy reach of the operator at all times.

Instantaneous feed and speed changes may be made with fingertip control while the machine is running.

*Send today for catalog No. 130.*



## CHARD Twelve-Speed All Geared Lathes

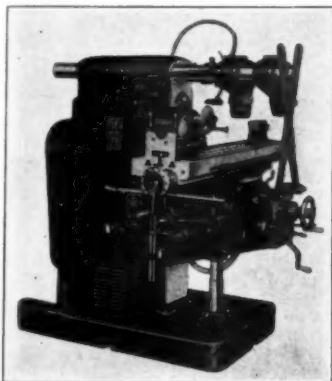
Precision Timken or plain bearing spindle—Instantaneous start or stop of spindle—12 speed changes in 15 seconds—Heat treated and hardened gears run in oil in speed box—All shafts mounted on ball bearings—Powerful, accurate, and easy control—Built in 16", 18" and 20" standard engine lathes, manufacturing lathes and tool room lathes. ● *Send today for full information.*

**Western Machine Tool Works**  
**HOLLAND, MICHIGAN**

## New Brown & Sharpe "Standard Type" and "Dual Control Type" Plain and Universal Milling Machines

The Brown & Sharpe Mfg. Co., Providence, R. I., announces that the eight newly-designed plain and universal milling machines in the No. 2 and No. 3 sizes retain all of the best features of the standard and high speed models which they replace, and in addition, have numerous improvements which have been made to meet present day milling requirements and to facilitate operation.

These new machines are available in two styles — the "Standard Type", for the more straightforward run of manufacturing or toolroom work, and the "Dual Control Type" where the work is such that wide feed range and complete control from both front and rear operating positions are important. Both styles are high-



speed machines, with 16 spindle speeds ranging from 30 to 1200 r.p.m. All machines of the new design are available for either overhead or motor drive, and when motorized, a single standard type motor mounted in the base is the source of power. Sturdily built, the machines have ample strength and rigidity to utilize the full power input without loss of accuracy.

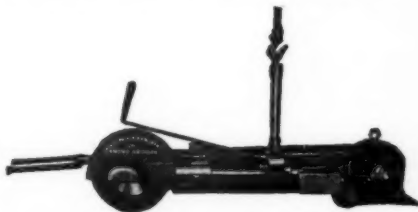
Other important features are: fast travel for all movements (140 inches per min. longitudinal, 56 inches per min. transverse and vertical); safety hand-crank for longitudinal adjustments of the table; automatic lubrication of knee and column mechanisms;

(Continued on Page 60)

# MARSCHKE

*Formerly Van Dorn, Black & Decker*

## HEAVY DUTY GRINDERS AND BUFFERS



In foundries, plating plants and other industries wherein grinding and polishing is done on a production basis, grinders and buffers are selected with the knowledge that *the best is the cheapest in the end.*

In such industries, experience teaches that quality—accounting for *dependable durability* of grinders and buffers—is by far the most important requirement.

That is why MARSCHKE GRINDERS and BUFFERS—formerly made by Van Dorn, Black & Decker—are so popular wherever there is need for continuous, hard service.

The best is the cheapest in the end.

**VONNEGUT MOULDER CORP.**  
1805 Madison Avenue, Indianapolis, Ind.

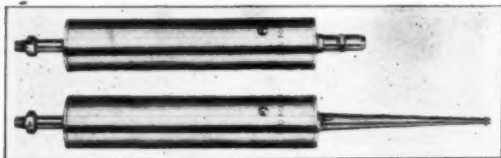
*A Catalog showing machines with 10" to 30" wheels and 1 to 25 H. P. motors will be sent promptly upon request. Use Coupon No. 47 when you write for it.*

and rotating speed and feed rate selective levers, designed for greater ease of operation. All eight machines have two-position control of feed engagement, of the direction of all feeds, and of the starting and stopping of the entire machine. In addition, the "Dual Control Type" machines have dual control of all fast travel movements and hand adjustments, so that complete control from both front and rear operating positions is provided. Machines of this style also have 32 rates of feed, from  $\frac{3}{32}$  inch to  $40\frac{1}{4}$  inches per min. longitudinally and from  $\frac{1}{8}$  inch to  $16\frac{1}{8}$  inches per min. for transverse and vertical feeds.

"Standard Type" milling machines have 16 feed rates,  $\frac{1}{16}$  inch to 26 inches per min. longitudinal and  $\frac{3}{32}$  inch to 26 inches per min. transverse and vertical. A wide feed range mechanism, giving 32 feed rates of the same range as on the "Dual Control Type" is available as an extra for the "Standard Type" machine.

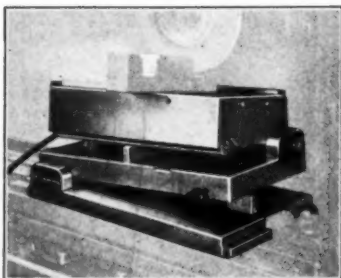
### New Quills for No. 7 Dumore Grinder

Two new quills, illustrated herewith, are now available for use with the No. 7 Dumore grinder, manufactured by the Dumore Company, Racine, Wis. The upper quill shown is known as the P quill. It is equipped with the  $\frac{1}{4}$ -inch chuck for using mounted wheels and a sleeve collet of  $\frac{1}{8}$ -inch capacity is also furnished. Its primary use is for grinding small internal holes of diameters less than an inch to a depth of  $1\frac{1}{4}$  inches.



The lower quill is the N-6 which is capable of grinding a hole  $11/16$  inch in diameter to a depth of 6 inches. It is also capable of grinding smaller diameters to a respectively shorter depth. For instance, it can grind a  $7/16$  inch hole for a depth of 2 inches.

Another quill, not illustrated, is the N-5 which is equivalent to the N-6, except that its maximum depth of grind is 5 inches. A fourth quill, known as the V-6, is equivalent to the N-6, except that it is used with the No. 5 Dumore grinder instead of the No. 7.



## Angular Grinding Set - Ups of ABSOLUTE PRECISION ACCURACY

NO OTHER CHUCK OR SIMILAR DEVICE offers the precision accuracy of the MAGNA-SINE in grinding work requiring either single or compound angles. The MAGNA-SINE itself is built to the finest precision limits. By utilizing standard gauge blocks, rather than graduated scales or similar methods, every angle is determined to the exact limits of the blocks used. The MAGNA-SINE principle is the *only* scientific method of measuring angles—and your assurance of absolute accuracy in either grinding or checking.

The MAGNA-SINE saves hours of set-up time . . . has no screws or nuts to tighten or loosen . . . requires no clamps . . . offers guaranteed magnetic efficiency . . . pays for itself many times over in its first year of use! **Quickmail Coupon No. 63** will bring you complete information.

# The MAGNA-SINE

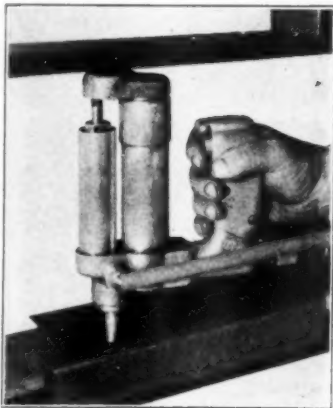
**ROBBINS ENGINEERING COMPANY**

**639 MT. ELLIOTT AVE., DETROIT, MICHIGAN**

## Progressive Hydraulic Spot Welding Gun

What is said to be the smallest and most compact portable hand welding gun, has been developed and perfected by the Progressive Welder Company, 737 Piquette, Detroit, Mich., for all sheet metal assembly and fabrication. This hydraulic, cableless gun is easy to handle because of the elimination of the heavy conductor cables, which are stiff and awkward to manage especially in small spaces.

The combining of the upper pressure bar as conductor bar and acting as back up bar and support, simplifies and reduces fixture costs. The lower bar, as in expansion type fixtures, is the other lead to the transformer, and also serves as a loading table to locate and position the work. The transformer and booster are built into the fixture, making a more compact set-up. For pro-



duction hand spot welding fixtures, this gun will give increased parts per hour because of its light, compact design, speed and ease of handling.

The hydraulic principle of operation insures perfect welds, as the "squeeze action" pressure insures the uniting of the parts to be welded; and "non beat" timing does not complete the electric welding cycle until the parts are united, preventing premature and imperfect welds. The off-center mounting of the piston decreases arcing and flaring at the welding points, materially increasing their wearing life or servicing periods. For production work the gun can be equipped with various points

*(Continued on Page 64)*

# "Gone with the Wind"



HAMMOND TOTALLY  
ENCLOSED FAN  
COOLED JOB



Type WH  
1, 7½ &  
50 H. P.

## HAMMOND GRINDERS WITH TOTALLY-ENCLOSED FAN-COOLED MOTORS

Set New Standards of Electric Grinder stamina and dependability by elimination of iron dust, metal chips, emery grit and shop dirt from motor windings. Write for bulletins showing complete line grinders and polishers.

Use Quickmail Coupon No. 23

*Hammond Machinery Builders*  
INCORPORATED  
KALAMAZOO, MICHIGAN, U.S.A.

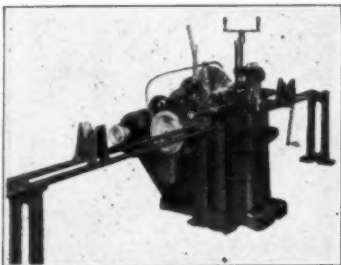
Eastern Branch: 148 W. 23rd St., New York

and adapters. Only the positioning of the welding gun and pressing the operating button is necessary to make perfect welds. Automatic timing, correct hydraulic pressure and application of electrical current after uniting of parts to be welded, eliminates the "human element" failure. Spade handles or regular grips will adapt this gun to almost any shape, section or set-up.

## Cochrane-Bly No. 2-B Metal Sawing Machine

The Cochrane-Bly Co., St. James St., Rochester, N. Y., announce an improved model of their No. 2-B Metal sawing machine, with multiple cutting equipment for small round bars.

The illustration shows a small circular saw arranged with support track and stock feed for cutting small round bars in multiple. The vise has capacity for holding 8, 1½" round bars or 118, ¼" bars at one time, and will make a cut in 1½ minutes.



Other sizes are held in proportion. The machine uses a 16" diameter saw blade, and is driven by a 2 h.p., 1200 r.p.m. motor through multiple V belts with welded steel guard.

If desired, the machine may be furnished with a three screw vise for holding the pieces being cut off outside of the saw blade, insuring clean cuts without prong. A lubricant pump with flexible tube and distributing nozzle over the saw blade is provided. The machine may be arranged for cutting single bars, and is provided with three changes of feed for hard and soft stock.

---

Samuel C. Rogers & Company, 191-205 Dutton Ave., Buffalo, N. Y., have issued a new 4-page illustrated price list, effective April 20, covering their line of automatic knife and saw grinding machines.





## **THE E-O SCREW DRIVER**

A fast, handy screw driver with friction clutch for driving Parker Kalon Screws as shown above.

Write us about your screw driving problems and let us send you the right tool for a ten day trial.

Use Quickmail Coupon No. 27 when you write.

THE

# **ROTOR**

AIR TOOL  
COMPANY

## South Bend Underneath Belt Motor Drive Lathe

The South Bend Lathe Works announce a new line of back geared, screw cutting, precision lathes in the new underneath belt motor drive. This new series is offered in 9", 11", 13", 15" and 16" swing, and in bed lengths of from 3' to 12'. The new underneath belt drive is unusually compact and is said to be silent, powerful and economical in operation. The motor and driving mechanism are fully enclosed in the cabinet leg underneath the lathe headstock. There are no exposed pulleys, belts or gears and no overhead belts or pulleys to obstruct vision or cast shadows on work.

The reversing motor and reversing switch permit starting, stopping and reversing the lathe spindle from an easy working position in front of the lathe. Lathe spindle may be instantly reversed when cutting screw threads.



Among the new features and improvements are: heat treated headstock spindle with all bearing surfaces hardened and ground, including the taper hole; spindles are

*(Continued on Page 68)*

# **FEDERAL** Heavy Duty Open Back Inclinable **PRESSES**

*"Built for Service"*



No. 3 Flywheel Type  
Capacity 50 Tons.

- ★ Efficient
- ★ Dependable
- ★ Accurate
- ★ Safe

All models of FEDERAL Presses are equipped with Timken bearings to increase efficiency and production at the lowest possible upkeep cost. Clutches are equipped with a positive locking device for die setting or adjustment and a device which makes it impossible for the press to repeat when momentum carries the crankshaft beyond center. This non-repeat safety feature reduces the danger of accidents to operator or dies.

Write today for information  
on the **FEDERAL PRESS** line:  
Use Quickmail Coupon No. 68

**FEDERAL PRESS CO.**  
ELKHART, INDIANA

special alloy steel, with phosphor bronze bearings, line bored and adjustable for wear; new double wall apron with self-oiling steel gears, and all gear shafts supported on both ends; multiple disc friction clutch in apron.

The new line is built in both the quick change gear and standard change gear types. The quick change gear lathes are equipped with a quick change mechanism for cutting 48 right and left hand standard screw threads ranging from 2 to 112 per inch, including 11½" pipe thread. Standard change gear lathes are equipped with a set of loose change gears for cutting right and left hand screw threads from 2 to 40 per inch, including 11½" pipe thread.

The company is issuing a new catalog No. 96, containing descriptions of these lathes with accompanying illustrations giving valuable instructions on lathe practice and operation. Any reader interested in securing a free copy should write the Technical Service Department, South Bend Lathe Works, South Bend, Ind., mentioning this publication.

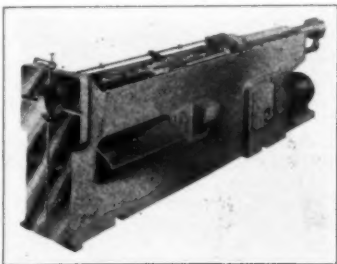
## Colonial Universal Broaching Machine

A modern all-purpose broaching machine is announced by the Colonial Broach Company, Detroit, Mich. Designated as the

"Universal" broaching machine it represents a combination of utmost flexibility and adaptability, together with high production speed and automatic operation. Designed for pull type broaching and hydraulic-

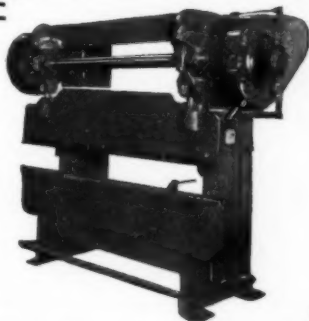
ally operated, it is as readily adapted to surface broaching as to the broaching of holes, round or splined, helical or straight, keyways, etc.

Incorporated in this machine are all the findings of years of intensive cooperation on broaching with in-



(Continued on Page 70)

## Forming a **PITTSBURGH LOCK** on **Verson** ALLSTEEL JR. PRESS BRAKES



Whether the machine used is our No. 1038, having 22 tons capacity, or our No. 2062 Heavy Duty, having 45 tons rating, **PITTSBURGH LOCKS MAY BE FORMED IN TWO OPERATIONS—at ONE HANDLING.**

This is only one of thousands of jobs our machines are capable of producing which makes them the ideal machine for the sheet metal industry.

Built in sizes ranging from 14 gauge x 52" to 14 gauge x 78" and 10 gauge x 48", these machines are unequalled for **CAPACITY—EFFICIENCY—and ECONOMY.**

It will pay you to consider **VERSON ALLSTEEL PRESS BRAKES** as the solution of your manufacturing problems.



Verson  
Pittsburgh  
Lock Die

*Copy of Bulletin JP-103  
will be mailed on request.*

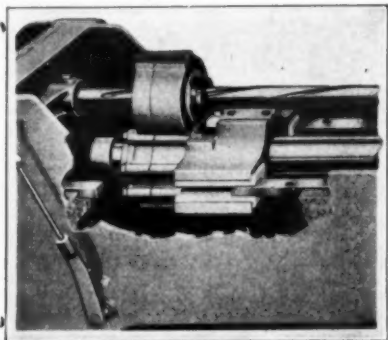
### THE ALLSTEEL PRESS CO.

12017 So. Peoria St.  
CHICAGO, ILL.



800 illustrations.  
Mailed without charge

dustry by Colonial. It is available in two basic stroke designations—48" and 60"—and in four tonnage capacities—6, 10, 15 and 20 tons. Standard cutting speed is 30' per min. A conveniently placed control permits adjusting of cutting speed to any speed up to this figure that may be desired. Return speeds of either 60' or 100' per min. are optional.

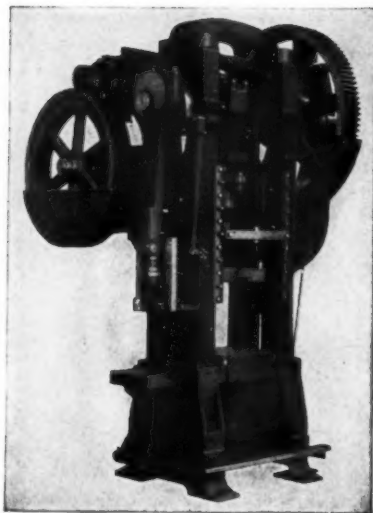


For surface broaching, the large face plate capacity, with its two keyways for ease and accuracy of location of even extremely large surface broaching fixtures is noteworthy. Tools up to 9" in width, or slightly larger may be used with this machine. For broaching of internal helical splines, either straight or involute, a spiral drive attachment has been developed. It consists of a rigidly mounted spiral master bar which, through gears, causes the broach to rotate as it passes through the work, producing the correct helical lead in the finished part with great accuracy, eliminating side thrust and drag on the sides of the splines. Machine may be operated from right or left sides as dual controls are provided.

A bulletin, No. 100-8A, describing this new "universal" is available upon request from the manufacturer.

---

Thompson-Bremer & Co., 1640 West Hubbard St., Chicago, Ill., is distributing a new catalog covering their line of "Everlock" Washers.



# ROCKFORD

**INCLINABLE  
AND**

**STRAIGHT SIDE  
PRESSES**

● Rockford Presses are sturdily built of the best materials and incorporate many features that are the result of years of experience in building presses of various types. You can depend upon a Rockford—for it is designed to maintain exact adjustment throughout long runs and under heavy duty.

*Write for Catalog.*

**ROCKFORD IRON WORKS**  
**ROCKFORD, ILLINOIS**

## New Line of Ace Arc Welders

The Pier Equipment Mfg. Co., Welding Equipment Division, 622 Cross St., Benton Harbor, Mich., announce a new series of a.c. portable arc welders which they claim has many advantages over gas welding, soldering, brazing and other methods of joining metals.

These welders incorporate a specially designed transformer with reactance and employ a circuit that provides a stable, non-blasting arc without spatter loss. These welders may be used for fillet, horizontal, vertical or overhead welding, and can be used for welding from 22 gauge sheet metal to heavy castings. They provide a very obedient arc without the magnetic blow that is usually experienced with d.c. welders.

The manufacturers state these welders are exceptionally efficient, more than 90% at full load, and that they are designed and built in keeping with the standards prescribed by both the American Welding Society and American Institute of Electrical Engineers. It is claimed that the production efficiency, performance and penetration of these welders is equivalent to any well designed motor generator, d.c. welder, when used with a good grade of coated welding rod.

Through a special circuit and control, the "Ace Synchro Control", protected by pending patent application, it is stated that both welding current and



(Continued on Page 74)



**FORMERLY** manufactured by Rockford Machine Tool Co., of Rockford, Ill.; thousands of these drills have been installed in plants the country over, where they have been giving universal satisfaction.

Counterbalanced, eight-speed spindle, made from high carbon special steel, has quick advance and return; positive feeds are instantly available while machine is in operation; all controls within easy reach.

## DRILLING MACHINES

**14'-20'-21'**  
**Stationary**  
**Head**

**24'-28'-32'**  
**36'**  
**Sliding**  
**Head**

\* \* \*

**Belt or**  
**Motor Drive**



*Write for  
Complete Details*

## **POWERFUL—SIMPLE— DURABLE—ACCURATE**

We have been builders of Drilling Equipment for more than 20 years and, in addition to the above drills, manufacture the Cleereman Automatically Oiled, Anti-Friction, High Speed Drilling, Boring and Tapping Machines; Gang Drills and Special Drilling Machinery.

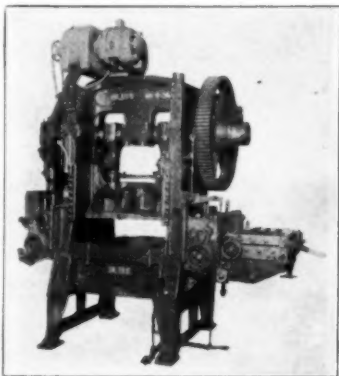
**CLEEREMAN MACHINE TOOL CO.**  
**GREEN BAY, WISCONSIN**  
*(Formerly Green Bay Barker Machine Tool Works)*

voltage is controlled in a manner comparable to that used on all successful motor generator, d.c. arc welders. These welders are designed for use on 220 or 440 volts, with a frequency of 60 cycles and are made in sizes from 15 up to 250 amperes for use with from  $\frac{1}{16}$ " to  $\frac{1}{4}$ " welding rod. Complete information may be obtained by writing the manufacturer at the address above.

## Bliss Automatic Double Crank Press

The E. W. Bliss Company, 1420 Hastings St., Toledo, Ohio, announce a new and improved design of their No. 4 high speed automatic blanking press. This press, although single geared, will operate from 30 to 90 strokes per minute through a variable speed drive. This range of speed is to permit selection of the best operating conditions to suit the length of feed and the gauge of metal to be run. A convenient hand chain controls the speed adjustment of the variable speed drive.

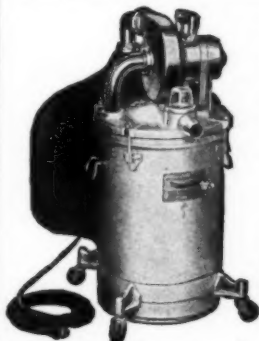
A magnetic line starter and push button controls the 5 h.p. driving motor, which in turn is connected to the fly-wheel by means of V-belts. The high speed rolling key clutch, locking pawl and releasing brake are standard features. The stroke of  $1\frac{1}{2}$  inch and an adjustment of 3 inch has been provided. The shutheight bed to slide, stroke down, adjust-



ment up, is  $11\frac{1}{2}$  inches, while the bolster is 4 inches thick with a 25-inch cored hole in the center. All main and connection bearings are bronze bushed with a crankshaft running on Timken roller bearings.

(Continued on Page 76)

***For the First Time! Vacuum Cleaning  
Made Applicable to All Plant Cleaning  
Requirements at Low Cost With***



**Breuer's Ball Bearing**

**TORNADO**

**Portable Industrial  
Vacuum Cleaner**

This new machine is designed to solve all industrial cleaning problems without the expense of installing a stationary plant or using so-called portable cleaners which are too heavy and expensive for average plant applications.

**TREMENDOUS POWER**

**1 H. P. Motor—46 $\frac{1}{4}$  Waterlift**

Do not confuse the TORNADO with light-duty cleaning machines. Model 112 combines light weight (only 40 pounds) with tremendous cleaning power (1 H. P. G. E. ball bearing Motor—46 $\frac{1}{4}$ " waterlift). Patented principle of separating fine dust from refuse and depositing heavy dirt in tank makes this cleaner as applicable to heavy duty work as the largest machines. Sturdy construction insures long life and low yearly cost.

Has plenty of power and capacity to handle dust, dirt, sand, sawdust, metal scraps, filings, etc. Attachments available for cleaning boillertubes, ovens, machinery, walls, floors, pipes, etc. Motor unit can be quickly removed for blowing dust from motors, etc. The handiest heavy duty, low cost, time and labor saving unit ever built.

*We prove TORNADO advantages right in your plant without obligation. Send Quickmail Coupon No. 30 for details of trial offer and further information or write.*

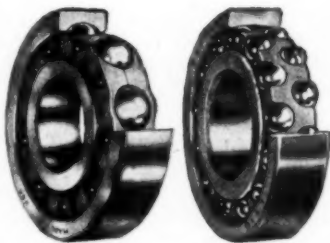
**BREUER ELECTRIC MFG. CO.**  
842 Blackhawk Street, Chicago, Illinois

A few of the principal dimensions: slide area 28 inches by 31 inches, bed area 34 inches by 35½ inches, 4 inch diameter of crankshaft at bearings, 6 inch diameter at connections and a distance of 36 inches between uprights. A Bliss high speed double roll feed, with a seven roll driven straightener and a shear type scrap cutter with regular press gibbing is mounted on the press. It is arranged to take coil stock 24 inches wide, right to left through openings in the housing. The upper blade of the scrap cutter can be adjusted to increase or decrease the cutting clearance. Feed rolls are 25 inches wide and the feed length is adjustable from 0 to 25 inches.

## New Fafnir Heavy Duty Ball Bearings

To meet the severe problems of shock loads, vibration and wear coincident with the operation of heavy duty machinery, The Fafnir Bearing Company of New Britain, Conn., has recently added a new series of high capacity ball bearings to its present extensive range of types and sizes.

Using as a basis the ever popular single row radial design, the new bearings are furnished in the heavy duty series, but with specially designed, sturdy, wear resistant, bronze retainers to take care of these extra duty requirements. Rugged,



dependable and accurately fabricated so that they will be exactly balanced in operation, they meet all demands imposed by this type of equipment. A folder entitled "Endurance" has just been published telling of the development of this new line, describing the new bearings with bronze retainers as well as other standard and special ball bearings suited to severe service uses. A copy may be obtained by writing directly to the Fafnir Bearing Company.



## THE HOME of SHEAR CUT ● END MILLS



**A**BOVE is pictured the plant of the PROGRESSIVE TOOL & CUTTER CO., at Ferndale, Michigan. Here, amid attractive surroundings and under ideal working conditions, is where the entire PROGRESSIVE line of quality tools is manufactured. The Progressive line of Shear Cut End Mills and Holders and other related Cutting Tools is made here from high grade materials with the finest of workmanship.

### An End Mill for Every Job !

Send us your blue prints on special end mills. Our many years of experience in their design and manufacture is at your disposal without obligation. We can give you good prices and quick deliveries. "When You Think of End Mills—Think of PROGRESSIVE."

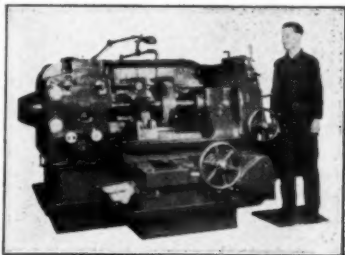
*Send Quickmail Coupon No. 58 today for your copy of the Progressive catalog. It illustrates and describes our entire line.*

**PROGRESSIVE TOOL & CUTTER CO.**  
**FERNDALE.**

## Farrel-Sykes Gear Generating Machine

The new Farrel-Sykes 2-C gear generating machine recently introduced by Farrel-Birmingham Company, Inc., Buffalo, N. Y., is especially designed to meet the exacting demands for high-precision gearing, coupled with high-speed production. A single operator can attend from two to four machines. To change work often takes only a few seconds, and the usual set-up time is said to be less than an hour. Automatic infed mechanism is adjustable to take from one to seven cuts. Changes in the depth feed are made without special equipment and except for mounting the work and taking it off, the new 2-C is entirely automatic.

It is equally suitable for tool room or general jobbing work or line production. It will cut every type of gear connecting parallel axes; machine cylindrical surfaces on shafts or pistons; cut parallel and tapered spline shafts; two



members of a cluster gear or many gang-mounted gears simultaneously. According to the manufacturers, this new machine will execute perfectly such difficult assignments as cutting double helical gears for aeroplane power transmission, or special increasing gears for driving superchargers. Its maximum cutting speed is 800 strokes per minute. Weighing 13,900 lbs., it occupies only 111"x87" of floor space.

It is claimed that owing to special hardening of the sliding surfaces this new model will operate 30,000 hours without wearing enough to appreciably affect the mechanism. Speed and feed controls are on the front; speed and feed change speed gear box is in one unit. All high speed moving parts are forced lubricated, and slide-ways are covered to keep grit out of the sliding surfaces. Full information may be obtained by writing directly to the manufacturer at the address above.

# Only Sutton

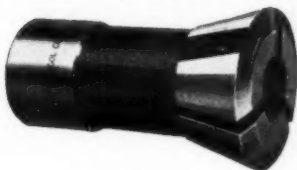
## DIAMOND

## GRIP

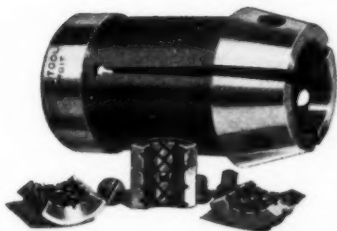
## COLLETS

are diamond serrated

### They Grip Tighter under Less Tension



Single-piece collets for all automatic and hand screw machines, listed on pages 6 to 11 of Sutton No. 12 Catalog.



Master type with diamond-serrated pads. Also Master Compensating Collets to handle hot-rolled stock.

Send Coupon No. 59 for Catalog No. 12 showing complete Sutton line of screw machine accessories.

**SUTTON TOOL CO.,** 2836 W. Grand Boulevard,  
DETROIT, MICHIGAN

## A Correction

In an article we published last month, we stated that the Modern Collet & Machine Company had recently introduced and have an exclusive feature of felt filler pads for collets.

The Morrison Machine Products, Inc., Elmira, N. Y., inform us that they have applied the same arrangement for the last four years.

---

The Landis Machine Company, Waynesboro, Penna., are distributing a unique booklet which they call the "Landis Check Book". Bound in check book form are the blue prints and records of 43 different threading production jobs, while the perforated stubs are numbered to correspond with each job and may be detached and sent in for further information on any job which particularly interests you. Tables of cutting speeds and thread standards are also included. A copy may be obtained by writing directly to the Landis Machine Company.

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The General Electric Company, Schenectady, N. Y., has published an attractive and useful bulletin, GED-650, entitled "Electric Heating Units and Devices". Much useful information is given in its 60 pages as well as descriptions and illustrations of their various units including immersion heaters, cartridge units, strip heaters, calrod and fin calrod units, unit and oven heaters, metal melting pots, control equipment, etc.

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J. H. Williams & Co., 75 Spring St., New York City, have published two new booklets. The first, Booklet No. A-409 illustrates and describes their line of "Supersocket" Wrenches (Detachable Sockets); "Superrenches" (Chrome-Molybdenum); "Superector", a new heavy duty, reversible ratchet wrench; "Non-Sparking" Safety Wrenches (Beryllium-Copper); and two recently announced lines of adjustable wrenches. Booklet A-81 describes the full drop-forged carbon steel wrench line, 50 patterns, more than 1,000 sizes. Bull dog types and screw wrenches are included. Copies of these booklets may be obtained by writing the manufacturer at the address given above.





*For specifications sheet and price lists  
use Quickmail Coupon No. 55.*

Use Coupons on

Hannifin Manufacturing Co., 621-631 South Kolmar Ave., Chicago, Ill., has purchased the machinery, equipment and name of John F. Allen Co., of New York, makers of air operated riveting machines. Manufacture, sales and service of Allen riveting machines will be continued as the Allen Riveter Works, Division of Hannifin Manufacturing Co., at St. Marys, Ohio. The Hannifin Manufacturing Co. has recently completed a new plant at St. Marys, Ohio, equipped for the production of large machinery.

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The Rotor Air Tool Company, 17325 Euclid Ave., Cleveland, Ohio, are distributing an attractive catalog, No. 15, covering their line of air tools including drills, reamers, screw drivers, nut setters, wood borers, grinders, buffers, sanders and wire brushing tools. They are also issuing a booklet entitled "The Facts about High Cycle Electric Tools" which gives considerable information on the engineering, operating and production facts on such tools.

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"Haynes Stellite J-Metal Cutting Tools", a new 52-page booklet of interest to users of machine tools, has just been published by Haynes Stellite Company, a unit of Union Carbide and Carbon Corporation. This booklet, which contains more than 60 illustrations of tools and machining operations, gives complete, detailed information on how to obtain maximum results in machining cast iron, malleable iron and most steels. Copies of this booklet will be gladly furnished on request by Haynes Stellite Company, Kokomo, Indiana.

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The Nice Ball Bearing Company, 30th & Nicetown Lane, Philadelphia, Penna., have issued their Catalog No. 102 covering their line of ball bearings of various types as well as other products they manufacture such as balls, sheaves, wheels and casters.

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Consolidated Air Conditioning Corp., 114 East 32nd St., New York City, has issued a bulletin describing their Odor Absorber. It is claimed that this surprisingly simple device will extract virtually all odor-creating organic and inorganic gases and vapors, rendering the effluent air free from all trace.



**SAVE TIME! GET BETTER RESULTS!  
INCREASE YOUR PROFITS!**

with a

## **MALL UNIVERSAL GRINDER**

More horsepower per pound of weight in the operator's hands than any other grinder on the market.

It will pay you to investigate this **PORTABLE, EFFICIENT, HIGH SPEED** machine for grinding and casting snagging. Also, inquire about the various other **MALL** grinders. There is a type for every job!

*Use Quickmail Coupon No. 46*

## **MALL TOOL COMPANY**

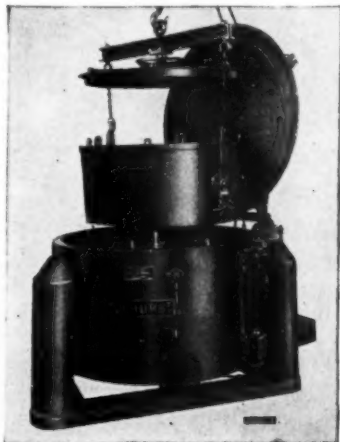
**7742 South Chicago Avenue  
Chicago, Illinois**

**Offices and Distributors in all Principal Cities**

## Tolhurst Centrifugal Chip Wringer

The Tolhurst Division of American Machine and Metals, Inc., 100 Sixth Ave., New York City, announce an improved model of the Tolhurst centrifugal chip wringer. This type of extractor is used to recover cutting oil from metal chips and turnings. A removable basket is filled with chips and placed in the centrifugal and the rapid rotation of the basket separates the oil from the chips, recovering in some instances as much as 97% of the lubricant.

The improvements lie in the design and method of handling the basket cover, which retains the chips while the machine is in motion. These covers are secured to the basket and machine spindle by a handwheel at the center, which operates radial bars locking at both the periphery and center. A lifting yoke is provided to facilitate the removal of the basket and cover. To



remove the basket, the yoke is lowered onto the basket, guided by a pilot at the center. The cover handwheel is turned through a short arc which at once releases it and simultaneously attaches it to the yoke. The yoke is also attached to links on the basket. By this means, the basket and cover are removed in one operation and may be easily transferred to any point for dumping.

For a detailed description of the machine, together with specifications and capacities of the various sizes, write directly to the manufacturer at the address given above.

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**DRILL JIG**

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**BUSHINGS**

## Standardized

Prompt delivery from stock on over 10,900 standard items — over 6700 ACME Standard — over 4200 A. S. A. Standard — all completely finished ready for use. *Special sizes made to order.*

Made in our new plant by the most exacting and scientific methods — insuring accurate fit plus long wear — concentric within .0003" full indicator reading.

Types shown at left, top to bottom, are: plain stationary press fit, type 'P'; shouldered stationary press fit, type 'S'; removable slip, type 'R'.

Send *Quickmail Coupon No. 39* for bulletin containing complete data and low prices. Satisfactory service guaranteed.

**ACME**  
**INDUSTRIAL CO.**  
210 N. LAFLIN ST.,  
CHICAGO, ILL.

## R. L. Carter Introduces New Grinder

A new grinder with a multitude of uses made possible with the application of a variety of attachments was introduced recently by the R. L. Carter Division of the Stanley Works, New Britain, Conn.

The new tool, No. GR7, may be used free hand to grind dies, to remove burrs on small metal parts and flashing on die castings and to carve wood. With a lathe holder, it may be used to true up lathe centers and for shallow internal and external grinding on work held in the lathe. With other attachments it may be used to grind small tools and to rout in wood or non-ferrous metals.



The 1/7 horsepower, 18,000 r.p.m. universal motor operates on either D. C. or A. C. at 60 cycles or less. Features include large ball bearings, an aluminum alloy housing and a 1/4-inch chuck that holds grinding points, drills, rotary files, arbors for wheels and Carter adapters for points with shanks as small as 1/16 inch.

The tool is packed in a wooden box with six grinding points, a tube of grease and a wrench, as shown in the illustration.

The Independent Pneumatic Tool Co., 600 West Jackson Boulevard, Chicago, Ill., have issued a handsome catalog, No. 51, illustrating and describing their line of "Thor" Pneumatic Tools.

# WITTEK

AUTOMATIC

## Roll Feeds

For Every Size and Make of Punch Press

**FAST  
ACCURATE  
AUTOMATIC  
SAFE**



### Increases Punch Press Production

Keeps production at the same steady high level day in and day out—no fatigue or other human "let down". Easily installed on any press without alteration. Feeds automatically any stock from coils in lengths from 0" to 24" per press stroke. Saves time, operating costs and dies—reduces scrap to a minimum. A type for every requirement—Single Roll, Double Roll, and Compound with straightener.

### Wittek Reel Stands

Automatic, Self - Centring, Ball - Bearing. Adjustable to any height, balanced at any angle, 500 lb. capacity. Prompt deliveries from stock. Also made in four other models.

Write Today for Bulletin "HF" giving complete details and specifications of WITTEK Automatic Roll Feeds and Reel Stands.

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**WITTEK MANUFACTURING COMPANY**

4305 9 W. 24TH PLACE.

CHICAGO, ILL.

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# NICHOLSON

## EXPANDING MANDRELS



They act as internal chucks for holding work while being machined on lathes, millers, grinders or shapers. Made in 14 different sizes taking bores of every fractional part of an inch from  $\frac{1}{2}$ " to 7". Sold singly or in sets. Write for Bulletin 530.

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## CONTROL VALVES

### 2, 3 and 4 Way Types



For operating air, water, steam or oil, single and double acting cylinders. Made in lever, foot, solenoid and motor operated styles for pressures up to 300 lbs. Hydraulic Valves up to 4000 lbs.



*Send Quickmail Coupon No 45 for Bulletin.*

Other Products—Arbor Presses, Flexible Couplings, Steam Traps, Steam Separators, Steel and Stainless Steel Floats, etc.

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**W. H. Nicholson & Company**  
117 Oregon Street, Wilkes-Barre, Pa.

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Here's a 12 page  
booklet that's chock-  
full of valuable  
data—and it's  
yours for the  
asking

**FILL IN AND  
MAIL THIS  
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**I**F you use cap screws or set screws in the manufacture of your product, you should have a copy of this book. It shows the advantages of the knurled construction of "Unbrako" Socket Head Cap Screws and "Unbrako" Hollow Set Screws. It gives sizes, and pictures the many types in the "Unbrako" Line. In fact, it's just loaded with information you should have at your elbow. Fill in the coupon and get your copy.

**STANDARD PRESSED STEEL CO.**

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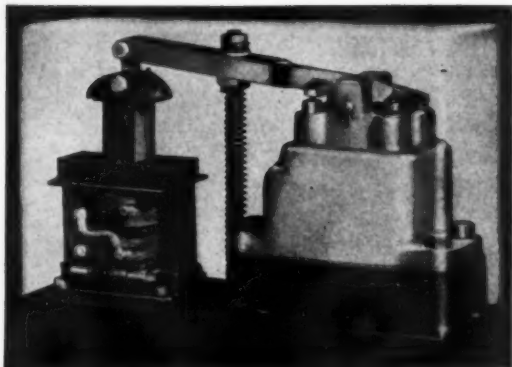
SAN FRANCISCO

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**NAME** .....

**COMPANY** .....

**ADDRESS** .....



# ROSS Operating Valves

## MODEL 4-PS

### **Four-Way Solenoid Controlled for the control of Double Acting Cylinders**

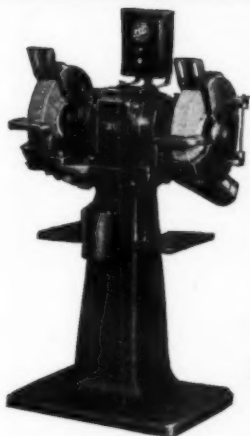
Simple in design—lightning swift in operation. The fastest operating valve on the market. All ports on one face, making installation and servicing easy. Made in hand, foot, mechanical and solenoid controlled types, for the control of both single and double acting cylinders.

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you write for new catalog.**

**Ross Operating Valve Company**  
6484 Epworth Blvd., Detroit, Mich.

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**BALL BEARING GRINDERS**

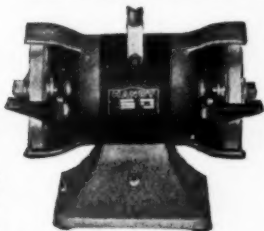


**Above, Our Largest----\$200**

**At Right, Our Smallest--1950**

**A Complete  
Line — each  
guaranteed  
for 1 year**

**QUALITY BUILT  
HEAVY DUTY  
GRINDERS**



**6' to 12' Bench and Pedestal Types**

*USE QUICKMAIL COUPON No. 18  
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**BALDOR ELECTRIC CO.**

*(Electrical Manufacturers for 17 years)*

**4368 Duncan Ave.,**

**St. Louis, Mo.**



Triplex  
Set  
Screws

## THEY STAY "SET"

TRIPLEX makes hardened set screws, accurately formed and threaded, that stand the gaff of tightening and stay set.

*Send for samples, catalog and price list.*

**THE TRIPLEX SCREW CO.**  
5377 Grant Ave., Cleveland, Ohio

# TRIPLEX

Complete  
Line of

**CAP AND SET SCREWS, BOLTS AND NUTS**

# DOALL CONTOUR SAWING OFFERS YOU ---



**SAVING** by cutting all die parts in one operation illustrates a striking advantage gained by users of DOALL Contour Sawing. As the American District Telegraph Company says of their DOALL operations, "Two days' work in two hours." Similar remarkable savings are reported by such companies as American Stove, Curtiss Airplane, Stevens Arms, General Electric, General Motors, and American Can. DOALL, the adaptable tool, is easy to investigate, simple to put in operation, quick to pay for itself. It belongs in every tool room.

The DOALL Contour machines are equipped with the Job Selector Dial, enabling operators to quickly determine the saw or file speed and other specifications for most efficient cutting. This exclusive DOALL advantage is one of the many features that bring enormous savings to DOALL users.



**JOB SELECTOR DIAL**

## INVESTIGATE THESE SAVINGS

1. Write us for formal quotation on DOALL.
  2. Send for Contour Sawing Handbook, sent free when requested on business letterhead.
- Use Quickmail Coupon No. 65 when you write*

**CONTINENTAL MACHINE SPECIALTIES**  
1301 South Washington Avenue  
MINNEAPOLIS MINNESOTA

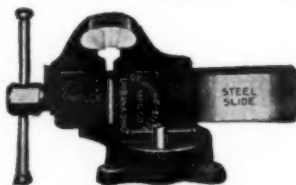
## DESMOND GRINDING WHEEL DRESSERS AND CUTTERS



We manufacture the only complete line of Dressers and Cutters and will gladly advise the proper dresser for your wheels. A well dressed wheel grinds faster and more accurately at a lower cost.

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## SIMPLEX STEEL SLIDE VISES



The exclusive solid steel slide makes these vises stronger and more serviceable than iron slide vises at no extra cost to you.

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*Attach Quickmail Coupon No. 41 to your letterhead for literature on Dressers and Vises and name of your nearest dealer.*

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**DESMOND-STEPHAN MFG. CO.**  
**URBANA, OHIO**

# **SHELDON**

## **ARBOR PRESSES and VISES**



### **Arbor Presses**

12 Sizes  
From  $\frac{3}{4}$  to 10 ton  
Pressure



### **Plain and Swivel Milling Machine Vises**

4 Sizes  
 $3\frac{1}{2}$  to  $8\frac{1}{2}$  inch Jaws



### **Shaper Vises**

2 Sizes  
12 and 14 inch Jaws



### **Drill Press Vises**

3 Sizes  
 $4\frac{1}{2}$ - $6\frac{1}{2}$  and 9 inch Jaws

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**SHELDON MACHINE CO.**  
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THE ONLY TAPPER WITH A LEATHER CLUTCH

*Ettco - Emrick*

## TAPPING ATTACHMENTS

ETTCO pioneered sensitive tapping 15 years ago with a leather lined friction driving clutch.

As yet we have found no substitute to equal the smooth, consistent super-sensitive action of leather for the exacting requirements of tapping.



The 1937 clutches have about double the "pull" and wear. Taking the Tapper apart and changing clutches is now a matter of a few minutes.

The Tappers have ball bearing spindles — needle bearing intermediate gears and all helical gears to insure the greatest possible speed.

**The Tap Idles "In" — Not Reverse —  
This Means Better Holes and Far  
More Tap Life.**

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*Drop us a line for our catalogue.  
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These tappers are used with the ETTCO *multiple tapping system* and our No. 71 gravity foot operated tapping machine.

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594 JOHNSON AVE.      BROOKLYN, N. Y.



# *Here's your pass to* **SMALL TOOL economy**

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**STEEL BURS  
and DRILLS**

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**ABRASIVE  
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Your name and address on the ticket below will bring a copy of Catalog TA illustrating and describing

## **S. S. WHITE SUPER-QUALITY CUTTING and GRINDING TOOLS**

When you mail it in, you will be taking the first step in cutting your small tool expense, because these tools will give you more hours of service than ordinary tools although they cost no more. Best materials, accurate construction and over half a century of manufacturing experience are the reasons. S. S. WHITE Tools will mean better work too, because they cut fast, true and retain their cutting edges. **FILL IN AND MAIL THE TICKET—TODAY.**

**ONE WAY TICKET TO SMALL TOOL ECONOMY**

**The S. S. WHITE Dental Mfg. Co.  
INDUSTRIAL DIVISION**

**10 East 40th St., Room 2310H, New York, N. Y.**

*Good for a copy of CATALOG TA with prices*

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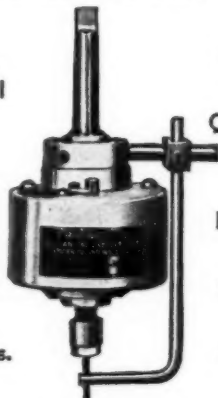
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*Super-Sensitive Ball Bearing*

## Cone Drive

*2 to 1 Auto-Reverse Tapping Chuck*

Combination  
Bronze & Ball  
Bearings  
Thru-Out  
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Easy and  
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of  
Cone-Clutches.



Depth gauge  
facilitates  
Quick-Handling  
Especially  
on  
Bottom-Holes  
—  
Other Styles  
and Sizes  
0" to 2" taps

Size	Taps in Steel	Taps in Cast Iron	Price	Code
No. 00	0" to 3/16"	to 1/4"	\$35.00	Phlam
No. 0	to 3/8"	to 1/2"	\$50.00	Phalanx

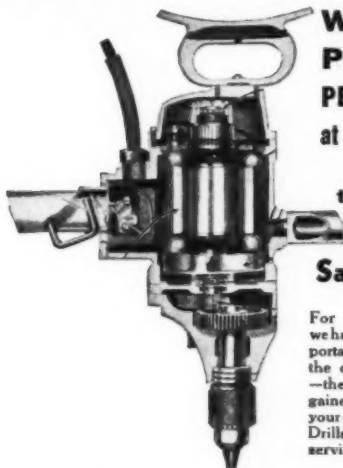
The principle on which this Style is designed is especially effective on very small tapping; whereas in the No. 0 size the Frictional Grip is Greatly INTENSIFIED, to cover a wider range, without loss of sensitiveness.

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Main Office and Works: STATEN ISLAND, New York

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# TEMCO Portable Electric DRILLS



**Will Give You  
POWER and  
PERFORMANCE  
at a Low PRICE**

**That's Why  
there are over**

**50,000  
Satisfied Users**

For more than 27 years we have been manufacturing portable electric drills and the constant improvements—the practical experience gained—over that period is your assurance that TEMCO Drills will render satisfactory service.

## **TOUGH Tools for TOUGH Jobs**

TEMCO Drills are ruggedly built to withstand the roughest usage. Norma high grade ball bearings are used to eliminate friction, with a special ball thrust bearing which removes all end friction. Power is furnished by a 25 to 60 cycle universal motor for direct and alternating current which is fan cooled and will not run hot. Deep cut, wide face, oil hardened gears will stand the hardest wear. Made in  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " capacities. All sizes from the  $\frac{3}{8}$ " up have these exclusive TEMCO features: oval aluminum handles, automatic switch and a balance on the side handle which makes the drill seem lighter than it really is and greatly reduces operator fatigue.

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Information and Prices*

**The TEMCO ELECTRIC MOTOR CO.**

**• Leipsic, Ohio, U. S. A. •**

*Oh Lead! Was this a tough baby to thread - very difficult to hold*



*I'll Say! And we gave them 1200 threaded pieces per machine every hour. That's production, Pitch, old boy!*



The above electrical connector was just a sample sent to our Machine Designers. Today it is just one of 1200 threaded pieces per hour spit from a new automatically indexing, cam controlled R&S threading machine.

*Send Coupon No. 38 for full information*

**THE RICKERT-SHAFER CO.**  
*Specialists in Thread Cutting Equipment*  
650 WEST 11th STREET, ERIE, PA.

# New 17" Two-Spindle "DELTA" DRILL PRESSES



## **SPEEDS**

**385, 600,  
935, 1450  
and 2240  
r. p. m.**

**\$224.<sup>25</sup>**

**With No. 2 Morse Taper  
Spindles, less motor.**

## **Again Delta rings the bell with more astonishing drill press values**

The heads of this drill press with the streamlined guards completely covering the spindle pulleys and belts, are of the same design that has proved so popular in the previous models. Heads are interchangeable, so that either two spindles with No. 2 Morse tapers, two spindles with Jacobs chucks, or one of each type can be used on the machine as desired. Spindles also may be quickly interchanged without changing heads.

Exclusive inverted-spindle design, with automobile-type 16-tooth spline drive and floating spindle sleeve. Spindles carried in New-Departure self-sealed ball bearings. All ball bearings are lubricated at the factory, and require no further attention or lubrication during their entire life.

**Send Coupon No. 29 for name of nearest dealer and special  
circular giving full details.**

**DELTA MFG. COMPANY**  
**651 E. VIENNA AVE., MILWAUKEE, WIS.**

# DUMORE *Announces* a new **MORE POWERFUL HAND GRINDER**



Modifying the teeth  
of a ring gear with  
a Dumore No. 10

A Dumore No. 10  
finishing a rough spot  
on a production fixture

Here's the "very latest" in off-hand grinding tools—the new Dumore No. 10. Compact, well balanced and weighing but 2 lbs. 12 oz., it is identical in size and shape to the popular No. 8 Dumore grinder—yet the No. 10 has twice the horsepower (1/18) and 1/3 greater speed — 20,000 r. p. m.

Originally custom-made for one of the large automobile manufacturers who wanted **EXTRA CAPACITY** without increased size, the Dumore No. 10 has found increasing usefulness in practically every industry. Available with a variety of wheels and abrasive bands. Write for catalog and name of nearest Distributor for demonstration.

For information, send Quickmail Coupon No. 10 today!

**THE DUMORE CO.,**

**RACINE, WIS.**

Per your ad in May  
Hitchcock's Blue Book  
send data on Bench  
Lathe Unit.

**HARDINGE  
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Per your ad in May  
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send building Press  
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**DREIS & KRUMP  
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Harding's Bulletins.

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send building on No.  
15 Tappan.

**BUFFALO  
FORGE CO.**  
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BUFFALO, N. Y.

Per your ad in May  
Hitchcock's Blue Book  
send data on Callers  
and Feed Fingers.

**MORRISON  
MACHINE  
PRODUCTS, INC.**  
ELMIRA, N. Y.

Per your ad in May  
Hitchcock's Blue Book  
send catalog Thread  
Grinders.

**JONES & LAMSON  
MACHINE CO.**  
SPRINGFIELD, VT.

Per your ad in May  
Hitchcock's Blue Book  
send mechanical en-  
gineering Bulletins on  
Lathes Drills.

**CULLMAN WHEEL  
CO.**  
1359 Altgeld St.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock's Blue Book  
send data on Dumore  
Grinders.

**THE DUMORE CO.**  
RACINE, WIS.

Per your ad in May  
Hitchcock's Blue Book  
send mechanical en-  
gineering Bulletins on  
Nos. 1 & 2 Click Saws.

**ARMSTRONG-  
BLUM MFG. CO.**  
341 N. Francisco Av.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock's Blue Book  
send catalog on De  
Luxe Grinders.

**CHICAGO WHEEL  
& MFG. CO.**  
1101 W. Monroe St.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock's Blue Book  
send catalog on Arm-  
strong Bros. Tools.

**ARMSTRONG  
BROS. TOOL CO.**  
308 N. Francisco Av.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock's Blue Book  
send catalog on Grinder  
as 10-day trial.

**CHICAGO WHEEL  
& MFG. CO.**  
1101 W. Monroe St.  
CHICAGO, ILL.

7

Stick coupon on a postcard or letterhead and sign name, title and firm. It will bring a bulletin on Chicago Press Brakes.

**DREIS & KRUMP MFG. CO.**

1

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Bench Lathe Unit.

**HARDINGE BROS., Inc.**

8

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on No. 15 Tapper.

**BUFFALO FORGE CO.**

2

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Hardinge Collets.

**HARDINGE BROS., Inc.**

9

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Thread Grinders.

**JONES & LAMSON  
MACHINE CO.**

3

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Collets and Feed Fingers.

**MORRISON MCH.  
PRODUCTS**

10

Stick coupon on letterhead or postcard and sign name, title and firm for information on Dumore Grinders.

**THE DUMORE CO.**

4

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Cullman Lathe Drives.

**CULLMAN WHEEL CO.**

11

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on DeLuxe Handee Grinders.

**CHICAGO WHEEL  
& MFG. CO.**

5

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Marvel Hackseaws.

**ARMSTRONG-BLUM  
MFG. CO.**

12

Stick coupon on letterhead or postcard and sign name, title and firm for Handee Grinder on 10 day trial.

**CHICAGO WHEEL  
& MFG. CO.**

6

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Armstrong Bros. Tools.

**ARMSTRONG BROS.  
TOOL CO.**



Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
Milling Attachment.

# **UNIVERSAL HIGH SPEED TOOL CO.**

549 Washington  
CHICAGO, ILL.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
Wyes line.

# **WYZENBEEK & STAFF**

642 Washington Bl.  
CHICAGO, ILL.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
The Riveter.

# **TOMKINS- JOHNSON CO.**

JACKSON, MICH.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
Napak Valve.

# **GALLAND- HENNING MFG. CO.**

2753 S. 31st St.  
MILWAUKEE, WIS.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
The Tool.

# **SHELDON MACHINE CO.**

3255 Cottage  
Grove Ave.  
CHICAGO, ILL.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
Hankins Tappers.

# **R. G. HASKINS CO.**

4654 W. Fulton St.  
CHICAGO, ILL.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
The Driller.

# **SKILSAW, INC.**

3318 Elston Ave.  
CHICAGO, ILL.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
The Shaft Hole.

# **R. G. HASKINS CO.**

4654 W. Fulton St.  
CHICAGO, ILL.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
The Making Machine.

# **OLIVER INSTRUMENT CO.**

1408 Maumee St.  
ADRIAN, MICH.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
Grinders and Planers.

# **HAMMOND MACHINERY BUILDERS**

KALAMAZOO, MICH.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
B. Grinders.

# **BALDOR ELECTRIC CO.**

4368 Duncan Ave.  
ST. LOUIS, MO.

Per your ad. in May  
Hitchcock's Blue Book  
send in application on  
Collectors and Chucks.

# **RIVETT LATHE & GRINDER, INC.**

Brighton  
BOSTON, MASS.

19

Stick coupon on letterhead or postcard and sign name, title and firm name for catalog on the complete Wyco line.

**WYZENBEEK & STAFF**

13

Stick coupon on letterhead or postcard and sign name, title and firm for information on Ekland Milling Attachment.

**UNIVERSAL HIGH  
SPEED TOOL CO.**

20

Stick coupon on letterhead or postcard and sign name, title and firm for your bulletin on Nopak Valves.

**GALLAND-HENNING  
MFG. CO.**

14

Stick coupon on letterhead or postcard and sign name, title and firm for circular on The Rivitor.

**TOMKINS-JOHNSON CO.**

21

Stick coupon on letterhead or postcard and sign name, title and firm for booklet on Haskins Tappers.

**R. G. HASKINS CO.**

15

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Sheldon Tools.

**SHELDON MACHINE CO.**

22

Stick coupon on letterhead or postcard and sign name, title and firm for a catalog of Flexible Shaft Tools.

**R. G. HASKINS CO.**

16

Stick coupon on letterhead or postcard and sign name, title and firm for information on Defender Drills.

**SKILSAW, INC.**

23

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Grinders & Polishers.

**HAMMOND MACHINERY  
BUILDERS**

17

Stick coupon on letterhead or postcard and sign name, title and firm for full information on Oliver Die Making Machines.

**OLIVER INSTRUMENT CO.**

24

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Rivett Collets & Chucks.

**RIVETT LATHE &  
GRINDER, Inc.**

18

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Ball Bearing Grinders.

**BALDOR ELEC. CO.**

31

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Metal Cutting Band Saws.

WELLS MFG. CORP.

25

Stick coupon on letterhead or postcard and sign name, title and firm for information on Wittek Roll Feeds.

WITTEK MFG. CO.

32

Stick coupon on letterhead or postcard and sign name, title and firm for catalog of Ross Operating Valves.

ROSS OPERATING  
VALVE CO.

26

Stick coupon on letterhead or postcard and sign name, title and firm for your catalog on Flexible Shaft Machines.

N. A. STRAND & CO.

33

Stick coupon on letterhead or postcard and sign name, firm and address for circular on Titan Stud Setters.

TITAN TOOL CO.

27

Stick coupon on letterhead or postcard and sign name, title and firm for information on E-O Screw Drivers.

ROTOR AIR TOOL CO.

34

Stick coupon on letterhead or postcard and sign name, title and firm for catalog of Atlas Timken Bearing Equipped Lathes.

ATLAS PRESS CO.

28

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on "Modern" Products.

MODERN COLLET &  
MACHINE CO.

35

Stick coupon on letterhead or postcard and sign name, title and firm for full information on BASA Hammers & Reversible Ratchet Wrench.

GREENE-TWEED & CO.

29

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Delta Drills.

DELTA MFG. CO.

36

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on the L-W Line.

L-W CHUCK CO.

30

Stick coupon on letterhead or postcard and sign name, title and firm for information on the Tornado Cleaner.

BREUER ELECTRIC MFG. CO.

Per your ad in May  
Hitchcock Blue Book  
send information on  
Feeds & Mill Blenders.

**WITTEK MFG. CO.**  
4305-9 W. 27th Pl.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock Blue Book  
send information on  
Cutting Band Saws.

**WELLS MFG.  
CORP.**  
315 Seventh Ave.  
THREE RIVERS, MICH.

Per your ad in May  
Hitchcock Blue Book  
send information on  
Flexible Joint Mchs.

**N. A. STRAND  
& CO.**  
5001 N. Lincoln St.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock Blue Book  
send information on  
Flex Operating Valves.

**ROSS OPERATING  
VALVE CO.**  
6484 Epworth Blvd.  
DETROIT, MICH.

Per your ad in May  
Hitchcock Blue Book  
send information on  
the E-O Scraper Driver.

**ROTOR AIR  
TOOL CO.**  
CLEVELAND, OHIO

Per your ad in May  
Hitchcock Blue Book  
send information on  
Stud Saws.

**TITAN TOOL CO.**  
FAIRVIEW, PA.

Per your ad in May  
Hitchcock Blue Book  
send information on  
Modern Products.

**MODERN COLLET  
& MACHINE CO.**  
403 Salliotte St.  
ECORSE, MICH.

Per your ad in May  
Hitchcock Blue Book  
send information on  
Timber Lathes.

**ATLAS PRESS CO.**  
550 N. Pitcher St.  
KALAMAZOO, MICH.

Per your ad in May  
Hitchcock Blue Book  
send information on  
Delta Drills.

**DELTA MFG. CO.**  
651 E. Vienna Ave.  
MILWAUKEE, WIS.

Per your ad in May  
Hitchcock Blue Book  
send information on  
Raisler Wrench.

**GREENE-TWEED  
& CO.**  
109 Duane St.  
NEW YORK, N. Y.

Per your ad in May  
Hitchcock Blue Book  
send information on  
the Trench Cleaner.

**BREUER ELECTRIC  
MFG. CO.**  
842 Blackhawk St.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock Blue Book  
send information on  
the L-W line.

**L-W CHUCK CO.**  
1-7 N. St. Clair St.  
TOLEDO, OHIO

# L-W HIGH SPEED 6x6 POWER SAW

AN IDEAL SAW FOR ANY SHOP

The highest grade of material and workmanship is employed in the making of this heavy duty power hack saw. It is efficient and accurate in operation.

The saw frame is so designed that maximum rigidity is obtained. The sliding bearing is dovetailed to fit the arm and is adjustable in all directions. Automatic trip is provided which stops the machine on completion of the cut, also automatic relief of the saw blade on the non-cutting stroke. To make a clean and compact assembly, the coolant pump is mounted inside the base. Capacity 6"x6" with 10" to 14" blades.



**\$145**

Weight 460 lbs.

Gravity feed Length gauge  
Expanding clutch  
Automatic stop  
Dovetailed saw frame  
Automotive relieving device  
Fast and accurate



## New Feature ! Automotive Releasing Device

To start cut, relieve weight of saw frame, hold down on release lever and lower saw to work—then start machine. The rest of the operation is automatic.

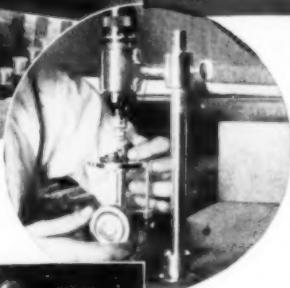
*L-W also manufactures magnetic chucks, lathe chucks, demagnetizers, vises and dividing heads. Send coupon No. 36 for a catalog of the complete L-W line.*

**L-W CHUCK CO.**  
1-7 N. ST. CLAIR ST., TOLEDO, OHIO

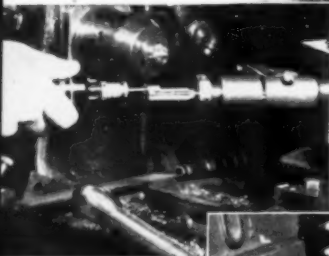
# HAND



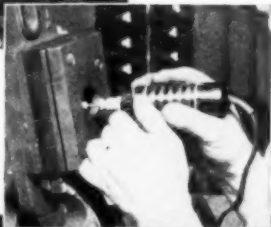
*The De Luxe Handee pays for itself many times over, often on one job.*



*Reaches those hard-to-get-at places. Its light weight and ease of handling in any position save time on a wide range of operations.*



*Indispensable in die shops and all metal working plants for touching up and polishing every type of die, even when set on presses.*



The most versatile actually a whole one. More than 2 able.

Indispensable in experimental labo-duction line in lar

For making, she metal products, at tion materials, wo precision jobs places on intri- without removing machine.

The finest, fastest tool for its typ ounces. Speed, portable; simply p socket. 110 volts,

Try a Hand e—y its smooth, rapid, sponse and the w it will do.

Order one today



# IDEE

## TOOL OF 1001 USES

versatile tool ever offered—  
a whole shop full of tools in  
more than 200 accessories avail-

able in model and tool room,  
metal laboratory, on the pro-  
ne in large and small plants.

ing, shaping, polishing all  
ducts, alloys, glass, composi-  
materials, wood, stone, etc. For  
jobs and hard-to-get-at  
intricate machine parts,  
removing parts or dismantling

fastest and most powerful  
its type and weight, 12  
Speed, 25,000 r.p.m. It is  
simply plug in any electric  
10 volts, AC or DC.

and e—you'll be amazed at  
h, rapid, almost human re-  
d the wide range of work

Today on 10-Days Trial.

- Grinds
- Drills
- Saws
- Routs
- Sands
- Carves
- Polishes
- Engraves
- Sharpens
- Cuts
- Cleans



For FREE CATALOG  
Use COUPON No. 11

For TRIAL OFFER  
Use COUPON No. 12

**CHICAGO WHEEL  
AND MFG. CO.**

Do Line  
Model

**\$18<sup>50</sup>**

postpaid  
& Accessories

# Chicago

## AUTOMATIC RIVET SETTERS WILL HANDLE RIVETS



AS SMALL  
AS THIS—

OR AS LARGE  
AS THIS!



A wider range of tubular and split rivets in all metals, the most complete line of power and manual automatic riveters, plus a competent consulting service makes "Chicago" best equipped to lick production problems. Send sample assembly with inquiry.

*Single and Multiple  
Setters.*

**Chicago**  
**RIVET AND  
MACHINE CO.**  
1855 South 54th Street  
(Cicero P.O.) Chicago, Ill.

 One of the World's Largest Manufacturers of Split and Tubular Rivets and Rivet Setting Machines 

### Use QUICKMAIL COUPON NO. 56

It will bring you our rivet price list and illustrations of Chicago Automatic Rivet Setters. On specific production problems write letter and send sample assembly or blue print.



Per your ad in May  
Hitchcock Value Book  
send date  
Weldon  
End Mills.

37

**WELDON  
TOOL CO.**

321 Frankfort Ave.  
CLEVELAND, OHIO

Per your ad in May  
Hitchcock Value Book  
send date  
Milling  
Attachments

43

**PORTER-CABLE  
MACHINE CO.**

Salina Street  
SYRACUSE, N. Y.

Per your ad in May  
Hitchcock Value Book  
send date  
R. & S.  
Threader

38

**RICKERT-SHAFER  
CO.**

650 W. 11th St.  
ERIE, PA.

Per your ad in May  
Hitchcock Value Book  
send date  
Unlitt  
Valves.

44

**HANNA ENG.  
WORKS**

1763 Elston Ave.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock Value Book  
send me  
Bushings.

39

**ACME  
INDUSTRIAL CO.**

210 N. Laflin St.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock Value Book  
send date  
drels—valves. Check i.

45

**W.H. NICHOLSON  
& CO.**

WILKES-BARRE, PA.

Per your ad in May  
Hitchcock Value Book  
send date  
Centers.

40

**SCULLY-JONES  
& CO.**

1905 S. Rockwell St.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock Value Book  
send date  
Power  
Tools.

46

**MALL TOOL CO.**

7742 So. Chicago Ave.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock Value Book  
send me  
Dressers and Vises.

41

**DESMOND-  
STEPHAN  
MFG. CO.**

URBANA, OHIO

Per your ad in May  
Hitchcock Value Book  
send date  
Grind-  
ers.

47

**VONNEGUT  
MOULDER  
CORP.**

1805 Madison Ave.  
INDIANAPOLIS, IND.

Per your ad in May  
Hitchcock Value Book  
send me  
Whitney line of Tools.

42

**WHITNEY METAL  
TOOL CO.**

ROCKFORD, ILL.

Per your ad in May  
Hitchcock Value Book  
send date  
Dressers.

48

**VINCO TOOL CO.**

7348 Central Ave.  
DETROIT, MICH.

43

Stick coupon on letterhead and sign name, firm and address when you write for a Porter-Cable Milling Attachment on 15-day trial.

**PORTER-CABLE MACHINE CO.**

37

Stick coupon on letterhead or postcard and sign name, title and firm for full information on Weldon End Mills.

**WELDON TOOL CO.**

44

Stick this coupon on a postcard or letterhead to receive information on Hanna Unifite Valves.

**HANNA ENGINEERING  
WORKS**

38

Stick coupon on letterhead or postcard and sign name, firm and address for data on R. & S. Threading Machines.

**RICKERT-SHAVER CO.**

45

Stick this coupon on your letterhead and sign. If you wish only one catalog, cross out either valves or mandrels.

**W. H. NICHOLSON**

39

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Drill Jig Bushings.

**ACME INDUSTRIAL CO.**

46

Stick this coupon on a postcard and sign name, title and firm name to get catalog on Mail Power Tools.

**MALL TOOL CO.**

40

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Scully-Jones Centers.

**SCULLY-JONES & CO.**

47

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Marschke Grinders.

**VONNEGUT MOULDER  
CORP.**

41

Stick coupon on letterhead or postcard and sign name, title and firm for a catalog on Wheel Dressers and Vises.

**DESMOND-STEPHAN  
MFG. CO.**

48

Stick coupon on letterhead or postcard and sign name, title and firm for circular on Vinco Angle Dressers.

**VINCO TOOL CO.**

42

Stick coupon on letterhead or postcard and sign name, title and firm for a catalog on the Whitney line of tools.

**WHITNEY METAL  
TOOL CO.**

55

Stick coupon on letterhead or postcard and sign name, title and firm for information and prices on Colonial Bushings.

**COLONIAL BUSHINGS, INC.**

49

Stick coupon on letterhead or postcard and sign name, title and firm for information on High Speed Tappers.

**ETICO TOOL CO.**

54

Stick this coupon on a postcard or letterhead and mail to receive a rivet price list and illustrations of Chicago Automatic Rivet Setters.

**CHICAGO RIVET &  
MACHINE CO.**

50

Stick coupon on letterhead or postcard and sign name, title and firm for a catalog on Electric Drills.

**TEMCO ELECTRIC  
MOTOR CO.**

57

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Siewek Drill Jigs.

**SIEWEK TOOL CO.**

51

Stick coupon on letterhead or postcard and sign name, title and firm for information on your new Arc Welder.

**HOBART BROTHERS**

58

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Progressive End Mills.

**PROGRESSIVE TOOL  
& CUTTER CO.**

52

Stick coupon on letterhead or postcard and sign name, title and firm for your General Catalog.

**VICTOR MACHINERY  
EXCHANGE, Inc.**

59

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Diamond-Grip Collets.

**SUTTON TOOL CO.**

53

Stick coupon on letterhead or postcard and sign name, title and firm for information on Ace Welders.

**PIER EQUIPMENT  
MFG. CO.**

60

Stick this coupon on a postcard or letterhead to receive data on the Precision Tool Head.

**PRECISION TOOL CO.**

54

Stick coupon on letterhead or postcard and sign name, title and firm for your new Catalog No. 36-G on Dial Indicators.

**FEDERAL PRODUCTS CORP.**

Per your ad in May  
Hitchcock's Blue Book  
send me your new catalog on  
High Speed Tooling.

**ETTCO TOOL CO.**  
598 Johnson Ave.  
BROOKLYN, N. Y.

Per your ad in May  
Hitchcock's Blue Book  
send information on  
Colonial Bushings.

**COLONIAL  
BUSHINGS, INC.**  
DETROIT, MICH.

Per your ad in May  
Hitchcock's Blue Book  
send me your new catalog on  
Electric Bells.

**TEMCO ELEC.  
MOTOR CO.**  
LEIPSIC, OHIO

Per your ad in May  
Hitchcock's Blue Book  
send information on  
Rivet price list.

**CHICAGO RIVET  
& MACHINE CO.**  
1855 S. 54th Ave.  
Cicero P. O.  
CHICAGO, ILL.

Per your ad in May  
Hitchcock's Blue Book  
send information on  
your new Arc Welder.

**HOBART  
BROTHERS**  
Box TB-47  
TROY, OHIO

Per your ad in May  
Hitchcock's Blue Book  
send catalog on  
Drill Jigs.

**SIEWEK  
TOOL CO.**  
FERNDAL, MICH.

Per your ad in May  
Hitchcock's Blue Book  
send me your General  
Catalog.

**VICTOR MACHY.  
EXCHANGE, INC.**  
251 Centre St.  
NEW YORK, N. Y.

Per your ad in May  
Hitchcock's Blue Book  
send me catalog on  
Progressive and Mills.

**PROGRESSIVE  
TOOL &  
CUTTER CO.**  
FERNDAL, MICH.

Per your ad in May  
Hitchcock's Blue Book  
send data on Arc  
Welders.

**PIER EQUIPMENT  
MFG. CO.**  
622 Cross St.  
BENTON HARBOR,  
MICH.

Per your ad in May  
Hitchcock's Blue Book  
send me catalog on  
Diamond Collets.

**SUTTON  
TOOL CO.**  
2836 W. Grand Bl.  
DETROIT, MICH.

Per your ad in May  
Hitchcock's Blue Book  
send me your new catalog  
along No. 100.

**FEDERAL  
PRODUCTS CORP.**  
1144 Eddy St.  
PROVIDENCE, R. I.

Per your ad in May  
Hitchcock's Blue Book  
send bullet on the  
Tool Heat.

**PRECISION  
TOOL CO.**  
BRIDGEPORT, CONN.

67

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Putnam End Mills, etc.

**PUTNAM TOOL CO.**

61

Stick coupon on letterhead or postcard and sign name, title and firm for catalog No. 9 and Reference Manual.

**THE APEX MACHINE  
& TOOL CO.**

68

Stick coupon on letterhead or postcard and sign name, title and firm for full information on Federal Presses.

**FEDERAL PRESS CO.**

62

Stick coupon on letterhead or postcard and sign name, title and firm for catalog of Count-erbore Sets.

**THE GAIRING TOOL CO.**

69

Stick this coupon on a postcard or letterhead and mail for information on the Sterling Sander.

**STERLING PRODUCTS CO.**

63

Stick coupon on letterhead or postcard and sign name, title and firm for information on the Magna-Sine.

**ROBBINS ENGINEERING CO.**

70

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Transmissions.

**LENNEY MACHINE &  
MFG. CO.**

64

Stick coupon on letterhead or postcard and sign name, firm and address for data on Sun-nen Honing Machines.

**SUNNEN PRODUCTS CO.**

71

Stick coupon on letterhead or postcard and sign name, title and firm for full information on Universal Vises.

**ODIN UNIVERSAL CORP.**

65

Stick coupon on letterhead or postcard and sign name, title and firm for information on the Do-All Machines.

**CONTINENTAL MCH.  
SPECIALTIES**

72

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Combination Tap and Drill Grinders.

**GALLMEYER &  
LIVINGSTON CO.**

66

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Keller-flex Machines.

**PRATT & WHITNEY  
Div. Niles-Bement-Pond Co.**

Per your ad in May  
Hitchcock Blue Book  
send catalog No. 9 and  
Reference Manual.

**APEX MACHINE  
& TOOL CO.**  
3rd & Madison Sts.  
DAYTON, OHIO

Per your ad in May  
Hitchcock Blue Book  
send catalog on  
Putnam End Mills.

**PUTNAM TOOL  
CO.**  
2981 Charlevoix Av.  
DETROIT, MICH.

Per your ad in May  
Hitchcock Blue Book  
send material on  
Counterboring.

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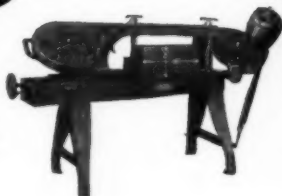
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8 in. diameter  
round or 8 in.  
by 16 in. flat.



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● The high-speed Wells Metal Cutting Band Saw will save you many precious minutes on those odd jobs in any part of the plant or shop. With its versatility and precision cutting—any shape and practically any metal—it offers a way to increase your production.

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Belt Sander  
Disc Sander  
"Stroke" Sander



For Only **\$76<sup>95</sup>**

Belt can be shifted from vertical to horizontal in a single minute. 8" vertical screw adjustment. Dust-sealed SKF ball bearings.

Including 1/2 H. P.,  
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**T**HE SM900 Universal Surfacer sets a new high in single machine values. Never before has so much been offered at so low a price. The SM900 surfaces wood, metal, bone, plastics, cork and countless other materials with amazing ease and speed.

*Write to-day for complete details and specifications*



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*Engineered* **POWER TOOLS**



# EACH HEAD CAN TURN TWO DIFFERENT-SIZED NUTS

This is a great saving over Ratchet Wrenches that turn only one nut in each head, as it means fewer parts to keep on hand.

## The FAVORITE Reversible Ratchet Wrench

Means greater efficiency and speed in nut turning, as you can use one side of head for one size nut, and by turning it over you can use the other side for a different-sized nut.

This head turns  
1" and 1 1/8"  
hexagon nuts  
U. S. Standard



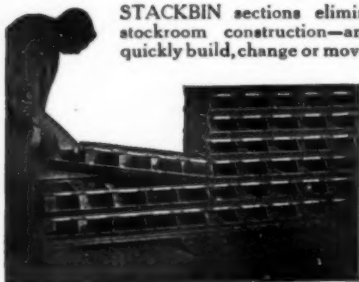
## TWO WRENCHES IN ONE

Reverse motion instantaneous by simply turning pawl. Opening clear through head. Can be used in narrow places. Works on a straight-ahead ratchet motion, and head does not leave nut until operation is completed.

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STACKBIN sections eliminate the cost of stockroom construction—any workman can quickly build, change or move a stockroom. No

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## STACKBIN Storage Is Convenient Storage

These strong steel sections nest together to form a storage unit of any size or shape. Parts and materials are always visible—always accessible. The hopper front and perfectly smooth interior speed up handling—eliminate loss of parts.

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*Stacked and  
still accessible*

**Patented**

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Send the coupon to-day—find out how STACKBINS can cut your storage costs.

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size ..... (give  
dimensions).

Name .....

Firm .....

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These welded steel racks allow you to use any box in the pile as easily as if they were drawers in a file. Write for the complete story on the money-saving STACKRACKS!

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## LATHES

Only \$14.00

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**FASTER! — faster!** When that demand goes around the shop remember that you can handle a lot of the small lathe jobs quicker and easier on Atlas Lathes equipped with Timken Bearings—and run at capacity production continuously. Timken Bearings are available for all 10" lathes and must be installed in our plant.

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Timesavers for your plant



Hand, foot or air operated 3-jaw chucks.

Hand or Foot operated collet, sizes from  $\frac{1}{64}$ " to  $1\frac{1}{4}$ ".

1,  $\frac{1}{2}$  or  $\frac{1}{4}$  h. p. AC 2 speed motor.

Steel bed plate or hand rest optional.

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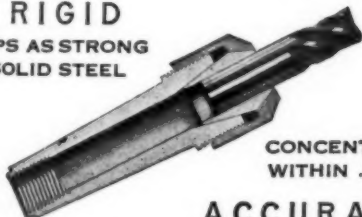
Just the tools for Finishing, Polishing or Lapping of small parts.

**T**HE very tools you've been looking for to produce those small parts quickly and economically. Eliminates tying up larger equipment with its slow and make-shift production methods. Built-in features of this new tool allow you to handle rod, tube and chuck stock better than ever before.

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GRIPS AS STRONG  
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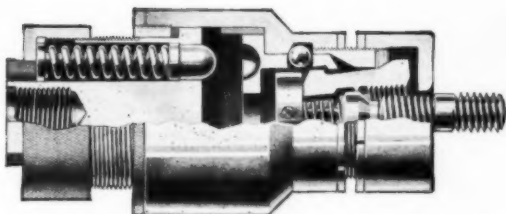


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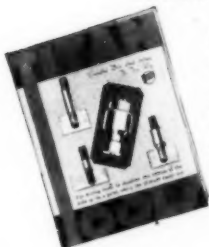
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FRANKENMUTH, MICHIGAN



## TITAN STUD SETTER

**Sets Studs to a Uniform Degree of Tightness without Strained or Mutilated Threads**

The Titan Stud Setter is a new controlled drive type for driving stud bolts, being full automatic in loading and releasing. It is a power-driven unit adaptable to all types of drill presses, air or electric tools, both portable and stationary. Operates at high or low speeds. Positive in driving and automatic in releasing. Studs may be set to any predetermined degree of tightness.



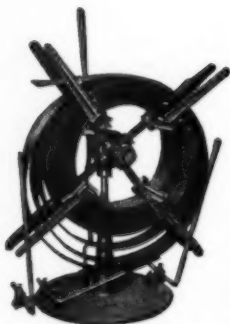
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**FAIRVIEW,  
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**Coiled Stock**  
**Can be**  
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**Efficiently**  
**with**  
**Littell Automatic**  
**Centering Reels**

Littell Automatic Centering Reels enable one man to load and center heavy coils in less than two minutes regardless of the difference in inside

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**Mfr's of Punch Press Feeds and Reels**

**You Can't Beat a HANDNIB**

**for Toolroom—and Experimental Work**

*Save 90% on templates,  
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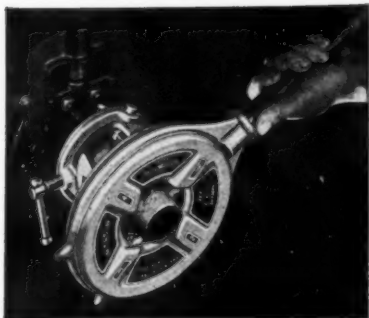
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Above  
 Model No. 4 has a  
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## threads 4 sizes of pipe

Instead of 16 separate dies usually needed to thread 1", 1¼", 1½" and 2" pipe, this **RIDGID** No. 65R threader threads them all perfectly with one set of 4 dies, that stay in the threaders, can't get lost.

Move the change plate to the size of pipe and the threader is ready for work. Even the new style workholder sets to size with a twist of a gauge ring—put it on the pipe and tighten with one screw.

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LATHE SPINDLES  
SPINDLE SLEEVES  
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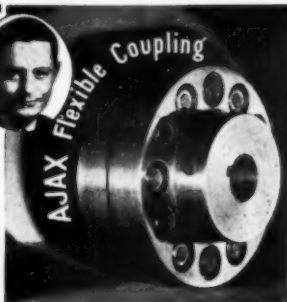
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# KRW Hydraulic and Sensitive ARBOR PRESSES

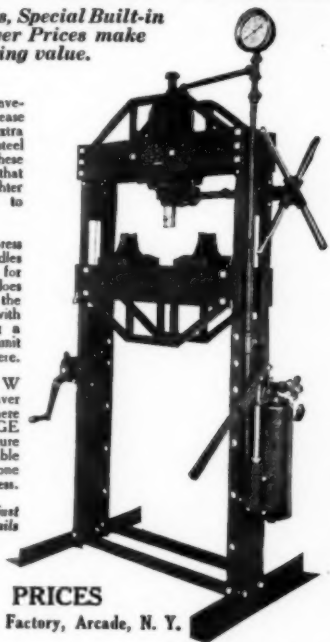
*New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.*

**T**HE last word in convenience, efficiency and ease of operation. Built extra strong and well braced, with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

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*Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.*



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No. 37—35 ton Hydraulic and Sensitive Arbor Press .....	\$150.00
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Gauge and fittings, \$15.00 extra on all presses.	

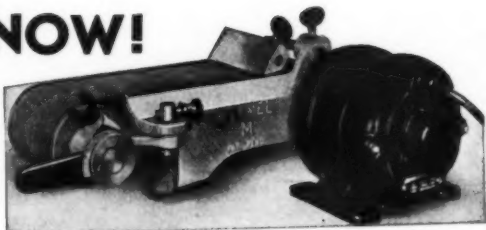
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**ABRASIVE BAND GRINDER—**  
*“Built Like A Machine Tool”*

The Hormel-M Grinder is sturdily built with a supporting leg under the grinding table to eliminate vibration and tipping due to pressure on belt. Ball bearing throughout, equipped with Alemite lubrication, complete with grease gun. Write for illustrated folder on this and other styles and sizes.

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**JUST A FEW**  
 This is just a few of the many oilers the  
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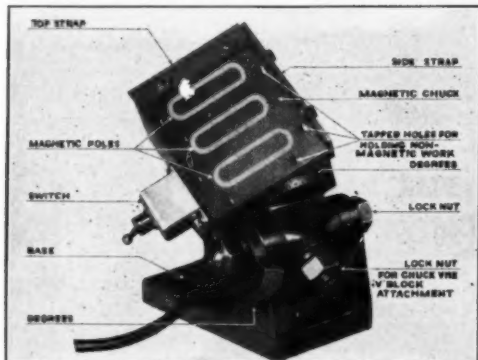


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**Built in two sizes, with "V" Block and Vise Attachments, to Fit.**

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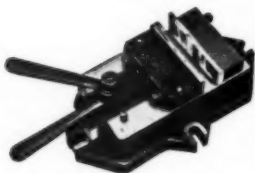
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## Hard Usage Doesn't Phase The HARTFORD MILLING VISE

Because it was designed to "take it"—and it does! It will stand up, day after day, under the heaviest, toughest strain of production milling work. Made of the best materials, with all parts interchangeable, it will outlast four or five ordinary vises. Rapid and accurate in operation—the top eccentric handle gives tremendous binding force, while the lower cam-faced handle gives instantaneous quick-opening and return. A trial in your shop will convince you better than anything we might say.

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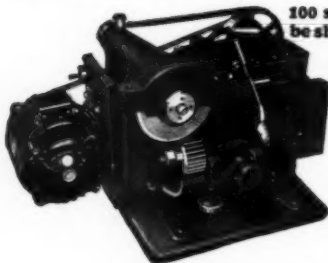
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Maximum opening .....	3 1/2"
Weight .....	40 lbs.

**Also made in the swivel-jaw type with hard or soft jaws, maximum opening 2 1/4".**

*We also Build Machinery on a Contract Basis, Design and Develop Special Automatic Machinery—Gears and Cams Cut to Order.*

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**100 saws of 16 gauge can be sharpened at one time**

Milling, Slitting and Screw Slotting saws from 2" to 5 1/2" diameter can be sharpened in gangs up to 1 1/4" in thickness, with tooth spacing up to 3/4".

The saws are automatically indexed and sharpened within a variation of plus or minus .001 of exact diameter of entire lot.

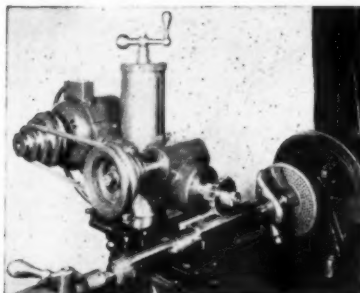
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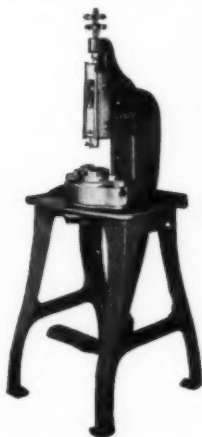
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is precision built, mounts easily and quickly upon your lathe. Performs accurately such operations as milling, hobbing, drilling, grinding, broaching. Cuts keyways, spline shafts, gears. Does grinding, internal and external.

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*Full automatic—capacity 10"x10" and 6"x6". The only machine that will make angular cuts automatically.*

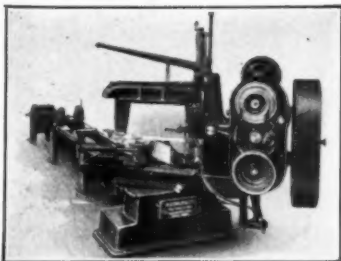
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**Three speeds by V belt.**

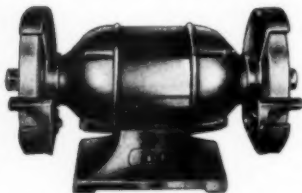
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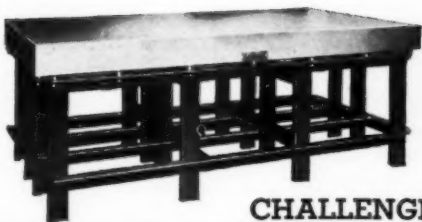


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**VALLEY ELECTRIC CORPORATION** ST. LOUIS,  
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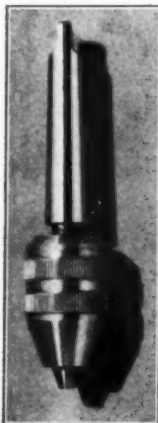


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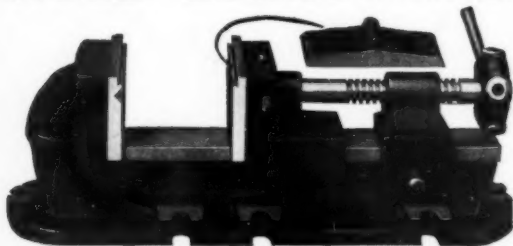
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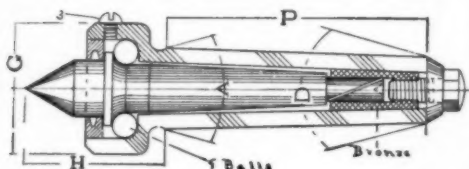
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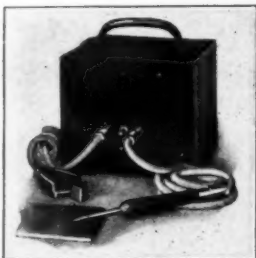
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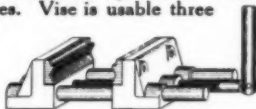
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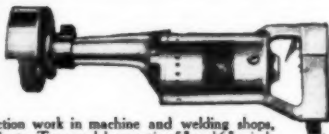
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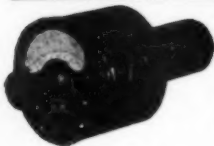
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**STOP** spoilage by getting the exact temperature of the work—not merely the heat of the furnace.

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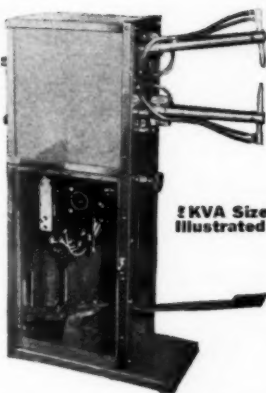
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102-105 Lafayette St., New York

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*for 100% welds*

**ARMGLO** automatic timing produces perfect welds, increases production and reduces time costs. To build up your profits, investigate **ARMGLO** welders. Made in sizes from 5 to 200 KVA, foot, motor and air operated.

*Send samples for test  
welds with your inquiry*



**2 KVA Size  
Illustrated**

**ARMGLO CO., 3530 W. Pierce St., MILWAUKEE, WIS.**

## UNIVERSAL DRILL BUSHINGS

MADE TO A. S. A. SIZES  
MEET ALL YOUR REQUIREMENTS  
WITH A 10% SAVING IN COST

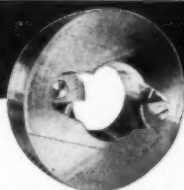


INTERCHANGEABLE  
LONG-LIFE  
EASILY  
REPLACEABLE  
PROMPT SERVICE



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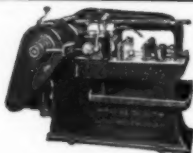
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Self Centering . . . Quick Acting . . . No slip. Attaches to any chuck plate or spindle. Provides a slip-proof, balanced drive reducing chatter. Handles rough forgings or turned pieces—straight or taper. Eliminates dogging time. Reduces tool breakage. Write for details and size range.

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*"Standard the World Over"*

- Hydraulic Feed
- Screw Feed
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Affords  
No Finer  
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# ANDERSON Improved Balancing Ways



Four Chilled iron discs rotate on sensitive special bearings.

*No Leveling Required*

A simple and excellent device for balancing straightening and truing.

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Swing	Greatest Distance Between Standards	Capacity in lbs.
20 in.	20 in.	1,000
40 in.	30 in.	2,000
60 in.	30 in.	2,000
72 in.	66 in.	5,000
96 in.	88 in.	10,000

## T. H. L. FRONT LEVER BENCH PUNCH

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work. Weight 70 lbs.

We can supply extra Punches at 20 cents each; extra Dies at 30 cents.

Capacity  $\frac{1}{2}$ " holes through  $\frac{3}{16}$ " steel;  $\frac{13}{32}$ " through  $\frac{1}{4}$ " steel. Can also be made for up to  $\frac{7}{8}$ " holes through thinner metal. Punches and dies in stock from  $\frac{1}{8}$ " to  $\frac{1}{2}$ ".

*Immediate shipment from stock*

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MACHINE CO.**

(Est. 1890)

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# HAND PUMPS



Hundred-and-one uses!—pumping from drums and barrels, handling oils, paints, etc. Rotary type—no priming. Same "Bucket" design as our large rotary power pumps, providing **AUTOMATIC** take-up-for-wear. **FOURTEEN** different models—Priced Right!



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IT'S OWN  
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## CARROLL Universal Dividing Heads

*Twenty Years of Popularity.*

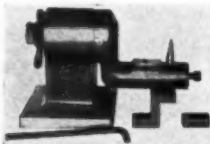
**"Quality at a reasonable price"**

6-inch, 10½-inch and 12-inch swing. Furnished either Right or Left hand type, for all makes of plain or universal milling machines.

*See your Dealer or write for bulletin showing complete line*

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Save time in your shop . . . eliminate costly hand-fitting . . . grind the various radii of your sectional dies, forming dies, punches, models, form tools, etc., after heat treating with grinding wheels dressed with a Universal Radius Dresser.

*Send for latest bulletin and prices*

## Universal Tool & Machine Co.

1123 W. Hillcrest Ave.,

Dayton, Ohio



## New Drill Grinding Attachment

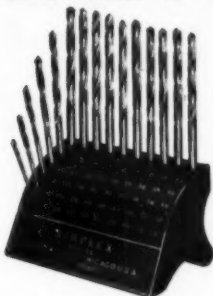
fits the Black & Decker Grinders, gives you a correct grinding of twist drills.

**PRICE ONLY \$18.** *Why not own one that you may be able to grind your twist drills the way they should be ground.*

Write to

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**Don't Look for a Needle in a Haystack**



## **SIMPLEX**

### **Drill Stand**

*The Friend of the Mechanic—  
Has These Exclusive Features*

1. All drills and numbers face the mechanic.
2. The six horizontal radially spaced rows of drills provide ease in extracting even the smallest drill.
3. The largest fingers will find it easy to pick any drill.
4. The horizontal and vertical arrangements of the numbers can be easily appreciated.
5. A well balanced, precision, zinc die cast product.
6. A great time saver.

#### **Moderately Priced**

\$1.00 size has drill holes numbered from 1 to 60.

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*There's a Ruthman pump  
for every machine at a  
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This portable pump and tank combination is a complete pumping unit, always ready for use. Gusher pumps need no priming, have no valves or gears and are so constructed that chips and abrasives pass through them without injuring the mechanism. Centrifugal seal eliminates packing. Ball bearing motor mounted safely above the water line delivers a steady, high volume at low pressure. Elimination of piping and extra valves and parts makes the Gusher simple to operate and easy to keep clean. Heavy duty casters are optional.

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### Portable Hydraulic Elevating Tables

For your portable lifting problems the Midwest Hydraulic Table will meet your requirements. 2000 lbs. Capacity. Max. Height 46½". Min. Height 31". Quick acting, sturdy for moving dies from rack to press. Supporting overhang on machines, etc. A money saver in machine shop or production factory.

*Write for illustrated circular*

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Uses Abrasive Wheels or Saws, and instantly swivels and cuts any angle from 45° left to 45° right, doing clean, instantaneous work on metal bars, shapes or tubes.

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### Adjustable Angle Plate

For grinding any angle accurately.

*Made in two sizes*

Model "A" with T slots 3½x3½ Price \$12.

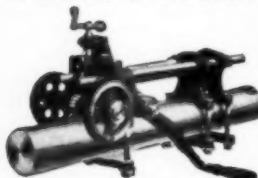
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*Desirable territory open for dealers*

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## BURR Portable Keyseaters



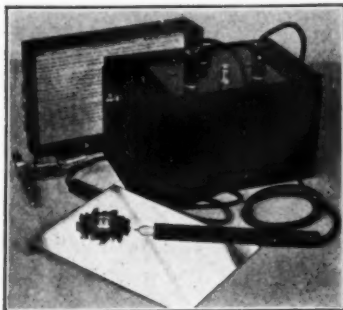
Indispensable for repair and maintenance work. BURR keyseaters mill keyways in the run or on the ends of shafts while they are still on the machine—accurately, quickly, economically—and save the necessity of taking down large shafts and housings. Made in 7 sizes, hand or power driven.

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that will etch any metal from the softest to the hardest, (lead to carbonyl).

Not an ordinary marking pencil, but a new and revolutionary tool.

Sixteen selective power ranges.

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Has revolutionized the hand air-operated grinder field. First in its capacity class to have ball bearings. First and ONLY grinder to have spindle speed of 100,000 R. P. M. Amazing power. Weight, 8½ ounces.

*Write today for full details*

**M-B PRODUCTS**

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**MIDDLETOWN,**

**OHIO**

your present equipment, by using the **RUSSELL BORING BAR?** Bore holes from  $9/16''$  to  $12''$  dia. with axis of boring bar parallel to axis of the shank, in one compact tool, with micrometer adjustment.

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## SMOOTH!



### L-R Type IA FLEXIBLE COUPLING

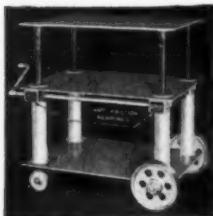
Just as a chain is no stronger than its weakest link, the most ingeniously designed machine can be no smoother in operation than the coupling used. L-R Flexible Couplings are the smoothest performers—proved so by all tests. Type IA in  $3/16''$  to  $23/4''$  bore—other types to  $14''$ . Write for literature.

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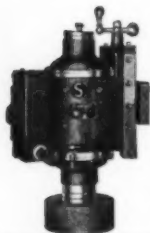
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## Standardized set-up appliances

Why force your men to waste time on machine tool table set-ups when CAD standardized appliances will convert this non-productive time into productive labor?

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*Set-up appliances for machine tools*  
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For use on Planer, Boring Mill,  
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**Heavy Duty Grinders and  
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Write for Catalog covering  
Electric Drills, (Disc) Grinders,  
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## COMMERCIAL CENTERLESS GRINDING COMPANY

Contract Centerless Grinding  
Accuracy—Prompt Service

6538 Carnegie Ave., Cleveland, Ohio

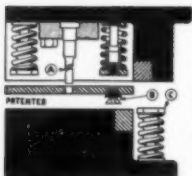
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Toolholders, Expanding Mandrels,  
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The most dependable and economical  
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- A—Broken punches can be replaced without delay
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- C—No stripper plate required for stripping scrap—Strippits alone will strip it.

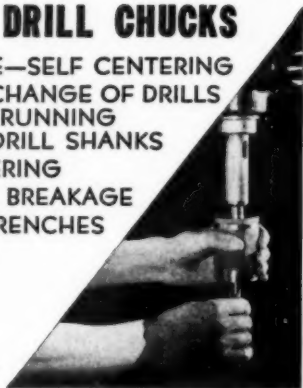
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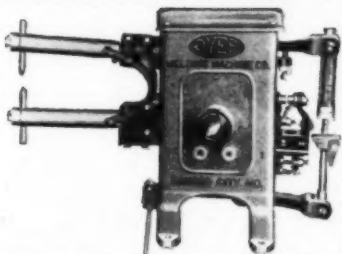
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Complete line from  
2½ to 20 K. W.

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5 K.W. 12" arms..\$135  
7½ K.W. 20" arms..\$150

Immediate stock shipment. Highest power factor of any welder on the market. Economical with current. Investigate the savings possible with Dyer welders. Do away with old methods of riveting and bolting.

Prices are on present stock—will be advanced after May 20—Act now!

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Shoulder and profile surfaces.

All kinds of materials

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SPOT WELDERS

BUTT • WIRE • SEAM

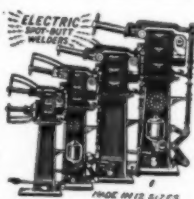
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Welders as low as \$25.00

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**Be Sure  
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**This  
Will Assure  
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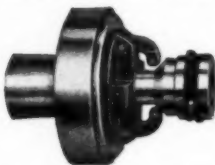
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### DISC TYPE

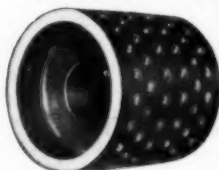


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## The Walton Tap Extractor

This handy tool has steel fingers which back out the tap *without injuring the threads*. It will save you many hours in the course of a year—paying for itself over and over again. Made in two, three and four-flute styles.

*Try One in YOUR SHOP—  
Sent on 60-day Trial Basis*

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**100%  
Adjustable**



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Models for Office, Factory and  
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Tannawits Works, Grand Rapids, Mich.

### **Air Cylinders**

Hanna Engineering Works, 1763 Elston Av., Chicago, Ill.  
Tomkins-Johnson Co., Jackson, Mich.

### **Air Valves**

Galland-Henning Mfg. Co., Milwaukee, Wis.  
Hanna Engineering Works, 1763 Elston Av., Chicago, Ill.  
W. H. Nicholson & Co., Wilkes-Barre, Pa.

### **Air Velocity Meters**

Illinois Testing Laboratories, 150 W. Austin Ave., Chicago, Ill.

### **Angle Dressers**

Vineo Tool Co., Detroit, Mich.

### **Angle Plates, Adjustable**

McMahon Co., Frank, Dayton, Ohio

### **Arbor Presses**

Atlas Press Co., Kalamazoo, Mich.  
W. H. Nicholson & Co., Wilkes-Barre, Pa.  
Sheldon Machine Co., 2225 Cottage Grove Ave., Chicago, Ill.  
Wilson K. R., Buffalo, N. Y.

### **Arbor Presses, Air Operated**

Hanna Engineering Works, 1763 Elston Av., Chicago, Ill.  
Tomkins-Johnson Co., Jackson, Mich.

### **Balancing Ways**

Anderson Bros. Mfg. Co., Rockford, Ill.

### **Baling Presses**

Galland-Henning Mfg. Co., Milwaukee, Wis.

### **Band Saw Machines, for Metal**

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago  
Grob Bros., West Allis, Wis.  
Oliver Machinery Co., Grand Rapids, Mich.  
Porter-Cable Machine Co., Syracuse, N. Y.  
Tannawits Works, Grand Rapids, Mich.  
Wells Mfg. Co., Three Rivers, Mich.

### **Band Saws, Open End**

Grob Bros., West Allis, Wis.

### **Bar Cutters**

Buffalo Forge Company, Buffalo, N. Y.

### **Bearings**

Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago

### **Belt Lacing**

Armstrong-Bray & Co., 215 N. Sheldon St., Chicago, Ill.

### **Belt Sanders**

Skisaw, Inc., 2304 Elston Av., Chicago, Ill.

### **Belts, V-Type**

Delta Mfg. Co. Milwaukee, Wis.

### **Bench Legs, Steel**

Standard Pressed Steel Co., Jankintown, Pa.

### **Bench Lathes**

Sheldon Machine Co., 2225 Cottage Grove Ave., Chicago, Ill.  
Hardinge Brothers, Inc., Elmhurst, N. Y.

### **Bench Punches**

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Buffalo Forge Company, Buffalo, N. Y.  
Leitch-Watts Mch. Co., T. H. 9118 47th., N. Y.

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Stacklin Corp., Providence, R. I.

### **Blowers**

Breuer Elect. Co., 346 Blackhawk St., Chgo.  
Buffalo Forge Co., Buffalo, N. Y.  
Clements Mfg. Co., 6650 Naragansett, Chicago  
General Blower Co., 401 N. Peoria St., Chicago  
Standard Electrical Tool Co., Cincinnati, O.

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Breuer Electric Co., 346 Blackhawk St., Chgo.  
Buffalo Forge Co., Buffalo, N. Y.  
Clements Mfg. Co., 6650 Naragansett, Chicago  
Skisaw, Inc., 2304 Elston Av., Chicago, Ill.

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Triplex Screw Co., Cleveland, Ohio

### **Boring Bars**

Rigid Tool Holder Co., Detroit, Mich.  
Russell Boring Bar Co., Middletown, Ohio

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R & L Tools, Nicetown, Phila., Pa.  
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Colonial Broachings Co., Detroit, Mich.  
Taylor Machine Co., Cleveland, Ohio

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Allsteel Press Co., 12015 S. Peoria St., Chicago  
Dreis & Krump Mfg. Co., 7460 So. Loomis Blvd., Chicago, Ill.

### **Brassers, Electric**

Grob Brothers, Grafton, Wis.  
Oliver Machinery Co., Grand Rapids, Mich.

### **Briquetting Machines**

Grob Bros., West Allis, Wis.

### **Buffers, Bench**

Hammond Mch. Builders, Inc., Kalamazoo, Mich.

### **Buffer Air Tool Co.,**

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### **Valley Electric Corp.,**

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### **Burs, Steel**

White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

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Acme Industrial Co., 210 N. Laffin St., Chicago, Ill.

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Wysenbeck & Staff, Inc., 642 Washington Blvd., Chicago

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## Instantaneous Direct Reading

The "Alnor" Velometer removes guesswork as to air speed, direction, drafts, dead spots in heating, ventilating and air conditioning work in the open or in the duct system. Measures total and static pressure as well as velocities.

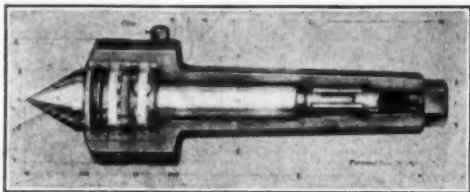


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**Illinois Testing Laboratories, Inc.**  
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## NIELSEN <sup>HEAVY</sup><sub>DUTY</sub> LIVE CENTERS



Here is a tool especially adapted for unusually heavy work. It is equipped with a combination of precision type roller and ball bearings to assure the rigidity and maximum capacity for high speed production and longest possible service.

Bearings can be renewed if necessary at slight cost. Tests in your machine shop will quickly demonstrate the precision, low maintenance cost and the durability that have established the "Nielsen" reputation. Write for catalog showing our line of improved live centers and tailstock spindles, with adjustments to take up wear and preload the bearings.

**NIELSEN, Inc.,      Lawton, Mich.**

## Classified Finding Index

### Chains, Silent and Roller

Chicago Gear Works, 769 W. Jackson Blvd., Chicago  
Cullman Wheel Co., 1859 Altgeld St., Chgo.

### Chamfering Machines, Automatic

Grant Mfg. & Mchs. Co., Bridgeport, Conn.

### Chasers, Thread

Jones & Lamson Mchs. Co., Springfield, Vt.

### Chucks

Elton Tool Co., 894 Johnson Av., Brooklyn, N. Y.  
Hauser Mfg. Co., 1838 No. Paulina St., Chicago, Ill.  
Universal Eng. Corp., Frankenmuth, Mich.

### Chucks, Air

Tomkins-Johnson Co., Jackson, Mich.

### Chucks, Automatic

Proconier Safety Chuck Co., 14 S. Clinton St., Chicago

### Chucks, Collet

Apex Machine Co., Dayton, Ohio  
Proconier Safety Chuck Co., 14 S. Clinton St., Chicago  
Tomkins-Johnson Co., Jackson, Mich.

### Chucks, Drill and Tap

Apex Machine Co., Dayton, Ohio  
Errington Mech. Labo. Staten Island, N. Y.  
Etico Tool Co., Brooklyn, N. Y.  
Hartford Special Mch. Co., Hartford, Conn.  
Proconier Safety Chuck Co., 14 S. Clinton St., Chicago  
Scully-Jones & Co., 1905 S. Rockwell St., Chicago, Ill.

### Chucking Fingers

Modern Collet & Mchs. Co., Ecorse, Mich.  
Morrison Mach. Products, Inc., Elmira, N. Y.

### Chucks, Quick Change

Proconier Safety Chuck Co., 14 So. Clinton St., Chicago

### Clutches, Friction

Carroll Mfg. Co., L. W., Cincinnati, O.  
Conway Clutch Co., Cincinnati, Ohio

### Cold Saws

Burke Machine Tool Co., Cincinnati, Ohio

### Collets for all Lathes and Millers

Apex Machine Co., Dayton, Ohio  
Hardinge Brothers, Inc., Elmira, N. Y.  
Modern Collet & Mchs. Co., Ecorse, Mich.  
Norton Tool Co., Detroit, Mich.  
Universal Eng. Corp., Frankenmuth, Mich.

### Collets for Auto. and Hand Screw Machines

Morrison Mach. Products, Inc., Elmira, N. Y.  
Sutton Tool Co., Detroit, Mich.

### Collets, Spring

Modern Collet & Mchs. Co., Ecorse, Mich.  
Morrison Mach. Products, Inc., Elmira, N. Y.

### Collet Tubes

Modern Collet & Mchs. Co., Ecorse, Mich.  
Sutton Tool Co., Detroit, Mich.

### Comparators

Federal Products Corp., Providence, R. I.  
Jones & Lamson Mchs. Co., Springfield, Vt.

### Contract Work Wanted

Burke Machine Tool Co., Cincinnati, O.

### Cone Drills

Gairing Tool Co., Detroit, Mich.

### Counterbars

Gairing Tool Co., Detroit, Mich.  
Scully-Jones & Co., 1905 S. Rockwell St., Chicago, Ill.

### Couplings, Belt

Armstrong-Bray & Co., 215 N. Sheldon St., Chicago

### Couplings, Compression Shaft

W. H. Nicholson & Co., Wilkes-Barre, Pa.

### Couplings, Flexible

Ajax Flexible Coupling Co., Westfield, N. Y.  
Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago  
W. H. Nicholson & Co., Wilkes-Barre, Pa.  
Lovejoy Flex. Coupling Co., 6026 Lake, Chgo.

### Couplings, Friction Clutch

Conway Clutch Co., Cincinnati, Ohio

### Couplings, Shaft

Ajax Flexible Coupling Co., Westfield, N. Y.  
W. H. Nicholson & Co., Wilkes-Barre, Pa.

### Cut-off Machines

Rasmussen Machine Co., Racine, Wis.

### Cut-off Saws

Oliver Machinery Co., Grand Rapids, Mich.  
Tannewitz Works, Grand Rapids, Mich.

### Cutters

Putnam Tool Co., Detroit, Mich.  
Progressive Tool & Cutter Co., Ferndale, Mich.

Tomkins-Johnson Co., Jackson, Mich.  
Weldon Tool Co., Cleveland, Ohio

### Cutters, Milling

Brown & Sharpe Mfg. Co., Providence, R. I.  
Scully-Jones & Co., 1905 S. Rockwell St., Chicago, Ill.

### Cutters, Gear

Michigan Tool Co., Detroit, Mich.

### Cutters, Keyway

Scully-Jones & Co., 1905 S. Rockwell St., Chicago, Ill.

### Demagnetizers

Grinding Machinery Co., Detroit, Mich.  
Lama Electric Equipment Co., Toledo, Ohio  
L. W. Chuck Co., Toledo, Ohio  
Printz Electric Co., Detroit, Mich.

### Dies, Blank and Forming

American Tool Works, Inc., Hartford, Conn.  
Hamilton Tool Company, Hamilton, Ohio  
Rickert-Shafer Co., Erie, Pa.

### Die Casting Machines

Madison-Kipp Corp., Madison, Wis.

### Die Castings

Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago  
Madison-Kipp Corp., Madison, Wis.

### Die Filers

Continental Mchs. Specialties, Minneapolis  
Grob Brothers, Grafton, Wis.

### Die Heads, Self-Opening

Apex Machine Co., Dayton, Ohio

### Die Making Machines

Armco Co., Milwaukee, Wis.  
Continental Mchs. Specialties, Minneapolis  
Grob Brothers, Grafton, Wis.  
Henry & Wright Mfg. Co., Hartford, Conn.  
Oliver Machinery Co., Grand Rapids, Mich.  
Oliver Instrument Co., Adrian, Mich.  
Universal High Speed Tool Co., 546 Washington Blvd., Chicago, Ill.

### Die Sets

Baumbach Mfg. Co., E. A., 1812 So. Kellbourne Ave., Chicago

### Die Sinking and Engraving Machines

Pratt & Whitney Co., Hartford, Conn.

### Dividing Heads

Wm. Carroll & Son, Norwood, Cincinnati, O.

### Dowel Pins, Steel

Aame Industrial Co., 210 N. Laffin St., Chicago, Ill.  
Baumbach Mfg. Co., E. A., 1812 So. Kellbourne Ave., Chicago

### Draftsmen's Tables

Hamilton Mfg. Co., Two Rivers, Wis.

### Dressers, Angle Tangent to Radius

Vinco Tool Co., Detroit, Mich.

# GEARS

**Spur - Helical - Worm - Bevel - Miter, Etc.**

Latest type of Hydraulic Operated Broaching Machine and Grinders.

We carry a large stock of spline and square broaches which on small orders saves you money.

Prompt service and quality has retained a large list of customers for 25 years.

**The Taylor Machine Company**  
**1919 E. 61st St., Cleveland, Ohio**

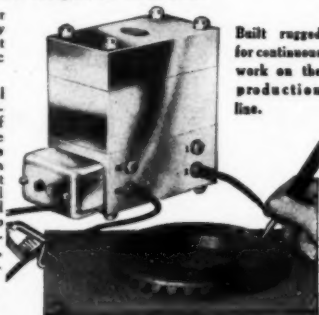
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A Production Tool with as many as 24 different stages or varieties of control for regulating the depth of marking, this tool can be used for extra light marking of machine steel scales, micrometers and fine tools or can be used, or *extra heavy and deep* marking of rough and unfinished iron, cast iron, forgings, steel plates, etc.

*Send for circular giving complete data and details of this modern instrument.*



**LUMA ELECTRIC EQUIPMENT CO.**  
**DEPT. H.—Main P. O. Box No. 132—TOLEDO, OHIO**

# Classified Finding Index

**Drills and Taps**  
 Etico Tool Co., 594 Johnson Av., Brooklyn, N. Y.

**Drill Bushings**  
 Acme Industrial Co., 210 N. Laflin St., Chicago, Ill.  
 Universal Eng. Corp., Frankensmuth, Mich.

**Drill Holders**  
 E. Toman & Co., 3621 W 21st Place, Chgo.

**Drills, Air**  
 Motor Air Tool Co., Cleveland, Ohio

**Drills, Electric**  
 Skilaw, Inc., 3804 Elston Av., Chicago, Ill.  
 SpeedWay Mfg. Co., 1822 So. 62nd Ave., Cicero, Ill.  
 Standard Electrical Tool Co., Cincinnati, O.  
 Temco Electric Motor Co., Leipsic, Ohio  
 Wedack Electric Tool Corp., 2629 W Huron St., Chicago, Ill.

**Drill Grinders**  
 Star Mch. & Eng. Co., Bloomfield, N. J.

**Drill Jigs, Special**  
 Houser Mfg. Co., 1038 No. Paulina St., Chicago, Ill.  
 Hovak Tool Co., Ferndale, Mich.

**Drill Jigs, Universal**  
 Houser Mfg. Co., 1038 No. Paulina St., Chicago, Ill.  
 Hovak Tool Co., Ferndale, Mich.

**Drilling Attachments, High Speed**  
 Graham Manufacturing Co., Providence, R. I.  
 Henry & Wright Mfg. Co., Hartford, Conn.

**Drilling Machines, Bench**  
 Atlas Press Co., Kalamazoo, Mich.  
 Buffalo Forge Company, Buffalo, N. Y.  
 Cleareman Mch. Tool Co., Green Bay, Wis.

**Drilling Machines, Multiple Spindle**  
 Buffalo Forge Co., Buffalo, N. Y.  
 Henry & Wright Mfg. Co., Hartford, Conn.

**Drilling Machines, Portable Electric**  
 Skilaw, Inc., 3804 Elston Av., Chicago, Ill.  
 SpeedWay Mfg. Co., 1822 So. 62nd Ave., Cicero, Ill.  
 Strand Co., N. A., 6001 N. Lincoln Street, Chicago, Ill.  
 Temco Electric Motor Co., Leipsic, Ohio  
 White Dental Mfg. Co., 16 E. 40th Street, New York, N. Y.

**Drilling Machines, Post**  
 Buffalo Forge Co., Buffalo, N. Y.  
 Henry & Wright Mfg. Co., Hartford, Conn.

**Drilling Machines, Radial**  
 Henry & Wright Mfg. Co., Hartford, Conn.  
 Western Machine Tool Wks., Holland, Mich.

**Drilling Machines, Sensitive**  
 Atlas Press Co., Kalamazoo, Mich.  
 Buffalo Forge Company, Buffalo, N. Y.  
 Burke Machine Tool Co., Cincinnati, Oh.  
 Henry & Wright Mfg. Co., Hartford, Conn.

**Drilling Machines, Vertical**  
 Atlas Press Co., Kalamazoo, Mich.  
 Buffalo Forge Company, Buffalo, N. Y.  
 Henry & Wright Mfg. Co., Hartford, Conn.

**Drives, Lathes**  
 Colman Wheel Co., 1289 Altgeld St., Chgo.  
 Hardinge Brothers, Inc., Elmira, N. Y.

**Electric Motors with Integral Brakes**  
 Star Mch. & Eng. Co., Bloomfield, N. J.

**Electrical Instruments**  
 Illinois Testing Laboratories, Inc., 130 W. Austin Ave., Chicago

**Elevating Tables**  
 Hamilton Tool Company, Hamilton, Ohio  
 Midwest Tool & Engineering Co., Dayton, O.

**Emery Stands**  
 Carrol Mfg. Co., L. W., Cleve., N. O.

**Emery Wheel Dressers and Cutters**  
 Desmond Stephan Mfg. Co., Urbann, Ohio  
 Western Tool & Mfg. Co., Springfield, O.

**End Mills**  
 Progressive Tool & Cutter Co., Ferndale, Mich.

Putnam Tool Co., Detroit, Mich.  
 Weldon Tool Co., Cleveland, Ohio

**Etching Machines, Electric**  
 Brewster Co., William, 50 Church St., N. Y. C.  
 Burn-, Joseph, M., Lakewood, Ohio  
 Grinding Machinery Co., Detroit, Mich.  
 Luma Electric Equipment Co., Toledo, Oh.  
 Prints Electric Co., Detroit, Mich.

**Exhaust Blowers**  
 Buffalo Forge Co., Buffalo, N. Y.

**Experimental Work**  
 American Tool Works, Inc., Hartford, Conn.

**Feeder Tubes**  
 Sutton Tool Co., Detroit, Mich.

**Feed Fingers**  
 Morrison Mach. Products, Inc., Elmira, N. Y.

**Feed Fingers for Auto. Screw Mchs.**  
 Modern Collet & Machine Co., Koorse, Mich.  
 Sutton Tool Co., Detroit, Mich.

**Files**  
 Grobet File Co., 5 Park Place, New York City

**Files, Rotary**  
 White Dental Mfg. Co., 19 E. 40th Street, New York, N. Y.

**Filing Machines**  
 Continental Mch. Specialties, Minneapolis  
 Grob Bros., West Allis, WI.  
 Oliver Instrument Co., Adrian, Mich.  
 Universal High Speed Tool Co., 549 Washington Blvd., Chicago, Ill.

**Filing Room Equipment**  
 Wardwell Manufacturing Co., Cleveland, Ill.

**Flexible Couplings**  
 Ajax Flexible Coupling Co., Westfield, N. Y.  
 Lovejoy Flex. Coupling Co., 5025 Lake, Chgo.

**Flexible Shafts and Accessories**  
 Wynnbook & Staff, Inc., 642 Washington Blvd., Chicago

**Flexible Shaft Couplings**  
 Lovejoy Flex. Coupling Co., 5025 Lake, Chgo.  
 W. H. Nicholson & Co., Wilkes-Barre, Pa.

**Flexible Shaft Machinery**  
 Haskins Co., R. G., 4624 W. Fulton, Chgo.  
 Pratt & Whitney Co., Hartford, Conn.  
 Walker-Turner Co., Inc., Plainfield, N. J.  
 Wynnbook & Staff, Inc., 642 Washington Blvd., Chicago

**Floating Holders**  
 Gairing Tool Co., Detroit, Mich.

**Forgings, Hollow Bored**  
 American Hollow Boring Co., Erie, Pa.

**Forming Tools**  
 Michigan Tool Co., Detroit, Mich.  
 Willey's Carbide Tool Co., Detroit, Mich.

**Furniture, Machine Shop**  
 Standard Pressed Steel Co., Jenkintown, Penna.  
 Western Tool & Mfg. Co., Springfield, O.

**Gages**  
 Federal Products Corp., Providence, R. I.  
 Swedish Gage Co. of Amer., Detroit, Mich.

**Gages, Chrome Plated**  
 Vinco Tool Co., Detroit, Mich.

**Gages, Gear, Spur and Helical**  
 Vinco Tool Co., Detroit, Mich.

# **New STURDIMATIC**

**The Live Center That Turns with the Work**



**Lowest Possible Overhang  
Maximum Tool Clearance!**

## **For Lathes, Grinders and Milling Machines**

Sturdimatic high speed heavy duty live centers eliminate chatter and friction of the dead center and save driving power. Job turns freely on ball-bearings. Center hole is never damaged.

**Sent on free trial. Write for information.**

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Assure Peak Production and Lower Maintenance. Rigid and Powerful. Bench and Floor Types. Motor or Belt Driven. There is a Linley machine for every riveting job.

*Send samples of your work for riveting, cost of equipment, and true estimates on production.*

**"Built to Last—Riveting Fast"**

**LINLEY BROTHERS CO.**  
579 Fairfield Avenue, **Bridgeport, Conn.**

# Classified Finding Index

- Gages, Pin, Plug, Ring and Snap**  
American Tool Works, Inc., Hartford, Conn.
- Gages, Taper**  
Hartford Special Mch. Co., Hartford, Conn.  
Vince Tool Co., Detroit, Mich.
- Gear Cutters**  
Brown & Sharpe Mfg. Co., Providence, R. I.
- Gears**  
Abart Gear & Mch. Co., 4832 W. 16th St.,  
Chicago, Ill.  
Chicago Gear Wks., 768 W. Jackson, Chgo.  
Taylor Machine Co., Cleveland, Ohio
- Gears, Master**  
Vince Tool Co., Detroit, Mich.
- Gears, Worm**  
Michigan Tool Co., Detroit, Mich.
- Gear Checking Machines**  
Michigan Tool Co., Detroit, Mich.
- Gear Motors**  
Star Mchs. & Eng. Co., Bloomfield, N. J.
- Generators**  
Chicago Electric Co., 1388 W. 32nd St.,  
Chicago, Ill.  
Janette Mfg. Co., 552 W. Monroe St., Chgo.  
Star Mchs. & Eng. Co., Bloomfield, N. J.
- Grinders, Air**  
Madison-Kipp Corp., Madison, Wis.  
M. B. Products, Detroit, Mich.  
Rotor Air Tool Co., Cleveland, Ohio
- Grinders, Bench**  
Baldor Electric Co., St. Louis, Mo.  
Carroll Mfg. Co., L. W., Cincinnati, O.  
Hammond Machinery Builders, Kalamazoo,  
Mich.  
Vonnegut Moulder Corp., Indianapolis, Ind.
- Grinders, Disc**  
Oliver Machinery Co., Grand Rapids, Mich.  
Porter-Cable Machine Co., Syracuse, N. Y.  
Wysenbeck & Staff, Inc., 642 Washington  
Bldg., Chicago
- Grinders, Electric**  
Chicago Wheel & Mfg. Co., M. C. Tool Div.,  
1101 W. Monroe St., Chicago, Ill.  
Skilaw, Inc., 3304 Elston Av., Chicago, Ill.  
Standard Electrical Tool Co., Cincinnati, O.
- Grinders, Electric Bench**  
Baldor Electric Co., St. Louis, Mo.  
Valley Electric Corp., St. Louis, Mo.
- Grinder, Flexible Shaft**  
Haskins Co., R. G., 4654 W. Fulton, Chgo.  
Mall Tool Co., 7742 S. Chicago Ave., Chicago  
N. A. Strand & Co., 6001 N. Lincoln, Chgo.
- Grinders, Hand**  
Chicago Wheel & Mfg. Co., M. C. Tool Div.,  
1101 W. Monroe St., Chicago, Ill.  
Dumore Co., Racine, Wis.  
I-B Products, Detroit, Mich.  
Rotor Air Tool Co., Cleveland, Ohio  
Skilaw, Inc., 3304 Elston Av., Chicago, Ill.
- Grinders, Heavy Duty**  
Vonnegut Moulder Corp., Indianapolis, Ind.
- Grinders, High Speed**  
Chicago Wheel & Mfg. Co., M. C. Tool Div.,  
1101 W. Monroe St., Chicago, Ill.  
Dumore Co., Racine, Wis.  
Mall Tool Co., 7742 S. Chicago Ave., Chicago  
M. B. Products, Detroit, Mich.  
Universal High Speed Tool Co., 549 Wash-  
ington Bldg., Chicago, Ill.  
Walker-Turner Co., Inc., Plainfield, N. J.
- Grinders, Pedestal Electric**  
Baldor Electric Co., St. Louis, Mo.  
Valley Electric Corp., St. Louis, Mo.
- Grinders, Swing Frame**  
Vonnegut Moulder Corp., Indianapolis, Ind.
- Grinders and Polishers, Belt**  
Oliver Machinery Co., Grand Rapids, Mich.  
Porter-Cable Machine Co., Syracuse, N. Y.
- Grinding Attachments, Drill**  
Carlson Mfg. Co., C. H., Minneapolis, Minn.  
Oliver Instrument Co., Adrian, Mich.
- Grinding, Centerless (Contract)**  
Commercial Centerless Grinding Co., 6538  
Carnegie Ave., Cleveland, Ohio  
Porter Machine Co., Cincinnati, Ohio
- Grinding Machines, Belt**  
Armiglio Co., Milwaukee, Wis.  
Production Machine Co., Greenfield, Mass.  
Wells Sales Corp., 98 Warren St., New York
- Grinding Machines, Cutter, Reamer and Tool**  
Brown & Sharpe Mfg. Co., Providence, R. I.  
National Machine Tool Co., Racine, Wis.  
Oliver Instrument Co., Adrian, Mich.
- Grinding Machines, Drill**  
Galmeyer & Livingston Co., Grand Rapids
- Grinding Machines, Floor**  
Hammond Mch. Builders, Kalamazoo, Mich.  
Standard Electrical Tool Co., Cincinnati, O.
- Grinding Machines, Internal**  
Dumore Co., Racine, Wis.  
National Machine Tool Co., Racine, Wis.  
Sunnen Products Co., St. Louis, Mo.
- Grinding Machines, Portable Electric**  
Chicago Wheel & Mfg. Co., M. C. Tool Div.,  
1101 W. Monroe St., Chicago, Ill.  
Dumore Co., Racine, Wis.  
H. G. Haskins Co., 4654 W. Fulton, Chicago  
Mall Tool Co., 7742 S. Chicago Ave., Chicago  
National Machine Tool Co., Racine, Wis.  
Pratt & Whitney Co., Hartford, Conn.  
Strand Co., N. A., 6001 N. Lincoln St., Chgo.  
White Dental Mfg. Co., 10 E. 40th Street,  
New York, N. Y.
- Grinding Machines, Surface**  
Galmeyer & Livingston Co., Grand Rapids  
Rogers & Co., Samuel C., Buffalo, N. Y.
- Grinding Machines, Tap**  
Galmeyer & Livingston Co., Grand Rapids
- Grinding Machines, Tool**  
Hammond Machinery Builders, Kalamazoo,  
Rogers & Co., Samuel C., Buffalo, N. Y.  
Mich.
- Grinding Machines, Universal**  
Brown & Sharpe Mfg. Co., Providence, R. I.
- Grinding Wheels**  
Chicago Wheel & Mfg. Co., M. C. Tool Div.,  
1101 W. Monroe St., Chicago, Ill.
- Grinding Wheels, Mounted**  
Chicago Wheel & Mfg. Co., M. C. Tool Div.,  
1101 W. Monroe St., Chicago, Ill.
- Grinding Wheels On Shanks**  
Chicago Wheel & Mfg. Co., M. C. Tool Div.,  
1101 W. Monroe St., Chicago, Ill.
- Hack Saw Blades**  
Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago
- Hack Saw Machines**  
Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago
- Hammers, Electric**  
Wodack Electric Tool Corp., 2629 W. Huron  
St., Chicago, Ill.
- Hammers, Tappers**  
Whitney Mfg. Co., W. A., Rockford, Ill.
- Hammers, Mallets and Malls**  
Chicago Hawbide Mfg. Co., 1200 Elston Av.,  
Chicago, Ill.
- Hammers, Soft Faced**  
Greene Twood & Co., 199 Duane St.,  
New York, N. Y.



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Packings



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**Leakage and  
Power Losses**

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Packing for accurate size and  
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chanically tanned and treated to  
give exactly controlled hardness,  
resilience, heat pressure and fric-  
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## SIMPLEX STOP MOTION

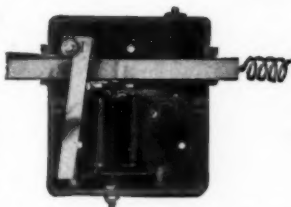
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HEAVIER.

INERTIA FORCES go UP,  
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The old style Mechanical  
Stop is INADEQUATE,  
OUTGROWN, OBSO-  
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ELECTRIC STOPS.



The SIMPLEX STOP MOTION is a SIMPLE, INEXPENSIVE electro-  
mechanical latch device, designed to control a heavy spring and  
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an ELECTRIC STOP.

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## Classified Finding Index

### Hand Pumps

Blackmer Pump Co., Grand Rapids, Mich.

### Hand Finishes

Whitney Mfg. Co., W. A., Rockford, Ill.

### Hand Saws, Portable Electric

Skilaw, Inc., 3304 Elston Av., Chicago, Ill.

### Hand Screw Machines, Precision Bench Type

Hardinge Brothers, Inc., Elmira, N. Y.

Hangers, Ball, Roller and Rabbitt  
Chicago Die Casting Mfg. Co., 3502 W.  
Monroe St., Chicago

### Heads, Boring

Flynn Manufacturing Co., Detroit, Mich.

### Hubs

Michigan Tool Co., Detroit, Mich.

### Hole Cutters

W. J. Beck & Staff, Inc., 642 Washington  
Bldg., Chicago

### Hollow Adjustable Mills

Gairing Tool Co., Detroit, Mich.

### Honing Machines

Sumner Products Co., St. Louis, Mo.

### Hydraulic Valves

Galland-Henning Mfg. Co., Milwaukee, Wis.

Hanna Engineering Works, 1783 Elston Av.,  
Chicago, Ill.

W. H. Nicholson & Co., Wilkes-Barre, Pa.

### Index Centers

Brown & Sharpe Mfg. Co., Providence, R. I.

Wm. Carroll & Son, Norwood, Cincinnati, O.

### Indicating Dials

Federal Products Corp., Providence, R. I.

### Indicators, Speed

Greene Tread & Co., 100 Duane St.,  
New York, N. Y.

### Indicators, Surface Test

Reich Mfg. Co., J. R., Dayton, Ohio

### Jigs and Fixtures

American Tool Works, Inc., Hartford, Conn.

Hamilton Tool Company, Hamilton, Ohio

Hartford Special Mch. Co., Hartford, Conn.

Stewak Tool Co., Ferndale, Mich.

### Keyseating Machines

Burr & Son, John T., Brooklyn, N. Y.

### Knife Grinders

Rogers & Co., Samuel C., Buffalo, N. Y.

### Knurls and Holders, for Turrets

Graham Manufacturing Co., Providence, R. I.

### Lathe Centers

Modern Mch. Corp., Brooklyn, N. Y.

Rigid Tool Holder Co., Detroit, Mich.

Sturdimatic Tool Co., Detroit, Mich.

### Lathe Drives

Culman Wheel Co., 1869 Altgeld St., Chgo.

Hardy & Brothers, Inc., Elmira, N. Y.

### Lathe, Automatic

Jones & Lamson Mch. Co., Springfield, Vt.

### Lathe, Bench

Atlas Press Co., Kalamazoo, Mich.

Delta Mfg. Co., Milwaukee, Wis.

Hardinge Brothers, Inc., Elmira, N. Y.

Rivett (Lathe) Grinder Inc., Brighton, Boston

Sheldon Machine Co., 8255 Cottage Grove  
Ave., Chicago, Ill.

South Bend Lathe Works, South Bend, Ind.

### Lathe, Back Geared

Rivett Lathe & Grinder, Inc., Brighton, Boston

South Bend Lathe Works, South Bend, Ind.

### Lathe, Brake Drum

South Bend Lathe Works, South Bend, Ind.

### Lathe, Engine

Porter-Cable Machine Co., Syracuse, N. Y.

South Bend Lathe Works, South Bend, Ind.

### Lathe, Cap Bed

South Bend Lathe Works, South Bend, Ind.

### Lathe, Polishing and Buffing

Hammond Machinery Builders, Kalamazoo,  
Mich.

### Lathe, Precision Bench

Hardinge Brothers, Inc., Elmira, N. Y.

South Bend Lathe Works, South Bend, Ind.

### Lathe, Precision Bench Screw Cutting

Hardinge Brothers, Inc., Elmira, N. Y.

South Bend Lathe Works, South Bend, Ind.

### Lathe, Screw Cutting

South Bend Lathe Works, South Bend, Ind.

### Lathe, Speed

Schaefer Machine Co., Cincinnati, Ohio

### Lathe, Turret

Jones & Lamson Mch. Co., Springfield, Vt.

### Leader Pins, Steel

Acme Industrial Co., 419 N. Carpenter St.,  
Chicago, Ill.

### Leather Belting, All Types

Chicago Rawhide Mfg. Co., 1300 Elston Av.,  
Chicago, Ill.

### Leather Oil Retainers

Chicago Rawhide Mfg. Co., 1300 Elston Av.,  
Chicago, Ill.

Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo.

### Leather Pkg., Hydraulic & Pneumatic

Chicago Rawhide Mfg. Co., 1300 Elston Av.,  
Chicago, Ill.

### Live Lathe Centers

Modern Mch. Corp., Brooklyn, N. Y.

Sturdimatic Tool Co., Detroit, Mich.

### Lubricators, Automatic

Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo.

Greene Tread & Co., 109 Duane St.,  
New York, N. Y.

Madison-Kipp Corp., Madison, Wis.

M. H. Products Co., Detroit, Mich.

Norgren Co., C. A., Denver, Colo.

### Lubricators, Engine

Madison-Kipp Corp., Madison, Wis.

### Mandrels, Saw and Grinding

Chicago Die Casting Mfg. Co., 3502 W.  
Monroe St., Chicago.

### Mandrels, Expanding

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Western Tool & Mfg. Co., Springfield, O.

### Micrometers

Swedish Gage Co. of Amer., Detroit, Mich.

### Milling Attachments

Brown & Sharpe Mfg. Co., Providence, R. I.

Burke Machine Tool Co., Cincinnati, Ohio

Wm. Carroll & Son, Norwood, Cincinnati, O.

Porter-Cable Machine Co., Syracuse, N. Y.

Universal High Speed Tool Co., 540 Washington  
Bldg., Chicago, Ill.

### Milling Machines, Bench

Burke Machine Tool Co., Cincinnati, Ohio

Hardinge Brothers, Inc., Elmira, N. Y.

### Milling Machines, Precision Bench

Brown & Sharpe Mfg. Co., Providence, R. I.

Hardinge Brothers, Inc., Elmira, N. Y.

### Milling Machines, Hand

Burke Machine Tool Co., Cincinnati, Ohio

### Milling Machines, Plain

Brown & Sharpe Mfg. Co., Providence, R. I.

Burke Machine Tool Co., Cincinnati, Ohio

### Motors

Chicago Electric Co., 1338 W. 22nd St.,  
Chicago, Ill.

Janette Mfg. Co., 552 W. Monroe St., Chgo.

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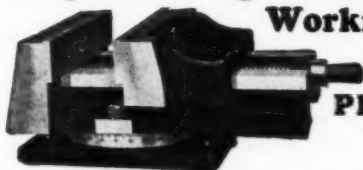
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# Classified Finding Index

- Motors, Small Universal**  
Speedway Mfg. Co., Cicero, Ill.
- Motor-Generator Sets**  
Chicago Electric Co., 1336 W. 22nd St., Chicago, Ill.  
Janette Mfg. Co., 552 W. Monroe St., Chgo.
- Motor Drives, Universal**  
Culman Wheel Co., 1359 Altgeld St., Chgo.  
Stange Machinery Co., 13 S. Clinton St., Chicago, Ill.
- Motors, Electric Ball Bearing**  
Valley Electric Corp., St. Louis, Mo.
- Moulds & Ladles, Hammer and Vise**  
Johnson Tool Co., East Providence, R. I.
- Multiple Oilers**  
Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo
- Nibbling Machines**  
Libert Machine Co., Green Bay, Wis.  
National Machine Tool Co., Racine, Wis.
- Nitrided Products**  
Universal Eng. Corp., Frankenmuth, Mich.
- Oil Cups**  
Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo.
- Oil Gauges**  
Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo.
- Oil and Grease Seals**  
Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo.
- Operating Valves**  
Galland-Henning Mfg. Co., Milwaukee, Wis.
- Packing, Hydraulic**  
Chicago Hawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
- Packings, Steam**  
Greene Tweed & Co., 109 Duane St., New York, N. Y.
- Fillow Blocks**  
Chicago Die Casting Mfg. Co., 3502 W. Monroe St., Chicago
- Pins and Lacing for Belting**  
Chicago Hawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
- Pins, Leader And Dowel**  
Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.  
Haumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago
- Pipe Cutters**  
Ridge Tool Co., Elyria, Ohio
- Pipe Vises**  
Ridge Tool Co., Elyria, Ohio
- Pipe Wrenches**  
Ridge Tool Co., Elyria, Ohio
- Point Thinning Machines**  
Oliver Instrument Co., Adrian, Mich.
- Press Brakes**  
Allsteel Press Co., 12015 S. Peoria St., Chicago  
Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.
- Press Feeds**  
Littlel Machine Co., F. J., 4125 Ravenswood Ave., Chicago, Ill.  
Witteck Mfg. Co., 4800 W. 24th Place, Chgo.
- Presses, Arbor**  
Atlas Press Co., Kalamazoo, Mich.  
W. H. Nicholson & Co., Wilkes-Barre, Pa.  
Shelden Machine Co., 3255 Cottage Grove Ave., Chicago, Ill.  
Wilson, K. R., Buffalo, N. Y.
- Presses, Bench**  
Rockford Iron Works, Rockford, Ill.
- Presses, Foot**  
Rockford Iron Works, Rockford, Ill.
- Presses, Inclined**  
Federal Press Co., Elkhart, Indiana  
Rockford Iron Works, Rockford, Ill.
- Presses, Power**  
Allsteel Press Co., 12015 S. Peoria St., Chicago  
Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.  
Federal Press Co., Elkhart, Indiana  
Rockford Iron Works, Rockford, Ill.
- Presses, Punch**  
Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.  
Henry & Wright Mfg. Co., Hartford, Conn.  
Leuthwaite Mch. Co., T. H., 311 E. 47th St., N. Y.
- Presses, Sheet Metal**  
Federal Press Co., Elkhart, Indiana
- Presses, Steel**  
Allsteel Press Co., 12015 S. Peoria St., Chicago
- Pullers, Gear and Wheel**  
Armstrong-Bray & Co., 315 N. Shelden St., Chicago, Ill.
- Pulleys, Die Cast**  
Chicago Die Casting Mfg. Co., 3502 W. Monroe St., Chicago.  
Conway Clutch Co., Cincinnati, O.
- Pulleys, Steel and Wood**  
Delta Mfg. Co., Milwaukee, Wis.
- Pulleys, Vacuum Cup**  
Vacuum Cup Metal Pulley Co., Detroit
- Pumps**  
Blackmer Pump Co., Grand Rapids, Mich.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Galland-Henning Mfg. Co., Milwaukee, Wis.
- Pumps, Coolant**  
Ruthman Machinery Co., Cincinnati, Ohio  
Tomkins-Johnson Co., Jackson, Mich.
- Pumps, Lubricant**  
Ruthman Machinery Co., Cincinnati, Ohio
- Punch, Shear and Bender, Hand**  
Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago  
Buffalo Forge Co., Buffalo, N. Y.
- Punches and Dies**  
Whitney Mfg. Co., W. A., Rockford, Ill.
- Punches, Hand**  
Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago  
Buffalo Forge Company, Buffalo, N. Y.  
Leuthwaite Mch. Co., T. H., 311 E. 47th St., New York  
Whitney Metal Tool Co., Rockford, Ill.
- Punches and Dies**  
Leuthwaite Mch. Co., T. H., 311 E. 47th St., N. Y.
- Pusher Tubes**  
Modern Collet & Machine Co., Ecorse, Mich.
- Pyrometers**  
Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago  
Pyrometer Instrument Co., 102-105 Lafayette St., New York City
- Pyrometers, Optical**  
Pyrometer Instrument Co., 102-105 Lafayette St., New York City
- Pyrometers, Portable & Stationary**  
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Pyrometer Inst. Co., 102 Lafayette, N. Y. C.

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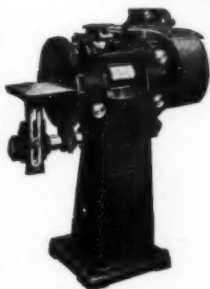
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## Pyrometers, Surface

Illinois Testing Laboratories, 150 W. Austin Ave., Chicago, Ill.  
Pyrometer Instrument Co., 108-108 Lafayette St., New York City

## Rivets, Tubular and Split

Chicago Rivet & Machine Co., 1855 S. 54th St., Cicero P. O., Chicago, Ill.

## Riveters, Automatic Feed

Chicago Rivet & Machine Co., 1855 S. 54th St., Cicero P. O., Chicago, Ill.

## Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

## Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.  
Hanna Engineering Works, 1763 Elston Av., Chicago, Ill.

## Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.  
Hanna Engineering Works, 1763 Elston Av., Chicago, Ill.  
Linley Bros. Co., Bridgeport, Conn.

## Riveting Machines, Tubular and Split

Chicago Rivet & Machine Co., 1855 S. 54th St., Cicero P. O., Chicago, Ill.

## Red Cutters

Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago  
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.

## Router Bits

Putnam Tool Co., Detroit, Mich.  
Weldon Tool Co., Cleveland, Ohio

## Sanders, Portable

Motor Air Tool Co., Cleveland, Ohio

## Saws, Electric Hand

Delta Mfg. Co., Milwaukee, Wis.  
Porter-Cable Machine Co., Syracuse, N. Y.

## Saw Sharpening Machines

Rogers & Co., Samuel C., Buffalo, N. Y.  
Wardwell Manufacturing Co., Cleveland, O.

## Sawing Machines

Continental Mch. Specialties, Minneapolis  
Grob Brothers, Grafton, Wis.

## Scraping Mchs., Hand & Pneumatic

Anderson Bros. Mfg. Co., Rockford, Ill.

## Screw Drivers, Electric

Haskins Co., R. U., 4554 W. Fulton, Chgo.

## Screw Machine Parts

Modern Coil & Machine Co., Ecorse, Mich.

## Screw Machines, Automatic

Brown & Sharpe Mfg. Co., Providence, R. I.

## Set Screws

Triplex Screw Co., Cleveland, Ohio

## Set-Up Appliances

Standard Shop Equip. Co., Inc., Phila., Pa.

## Shafts, Flexible

R. G. Haskins Co., 4554 W. Fulton, Chicago  
Frost & Whitney Co., Hartford, Conn.  
Sturand Co., N. A., 5001 N. Lincoln St., Chgo.  
White Dental Mfg. Co., 19 E. 40th Street, New York, N. Y.

## Shafts, Hangers & Boxes

Delta Mfg. Co., Milwaukee, Wis.

## Shafts, Steel

American Hollow Boring Co., Erie, Pa.

## Shapers

Western Mch. Tool Wks., Holland, Mich.

## Shaping Machines

Osborne & Sexton Machy. Co., Columbus, O.  
Western Mch. Tool Wks., Holland, Mich.

## Shears, Hand

Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago  
Beverly Throatless Shear Co., 3007 W. 110th Place, Chicago, Ill.  
Lewthwaite Machine Co., T. H., 311 E. 47th St., New York  
The National Machine Tool Co., Racine, Wis.  
Whitney Metal Tool Co., Rockford, Ill.

## Shears, Power

Buffalo Forge Co., Buffalo, N. Y.  
Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.  
Libert Machine Co., Green Bay, Wis.

## Shears, Slitting

Beverly Throatless Shear Co., 3007 W. 110th Place, Chicago, Ill.  
Buffalo Forge Co., Buffalo, N. Y.  
Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.  
National Machine Tool Co., Racine, Wis.

## Shears, Throatless

Beverly Throatless Shear Co., 3007 W. 110th Place, Chicago, Ill.

## Sheet Metal Machinery

Libert Machine Co., Green Bay, Wis.

## Shop Lights

Chicago Die Casting Mfg. Co., 1802 W. Monroe St., Chicago.

## Shop Stools

Standard Pressed Steel Co., Jenkintown, Penna.

## Sine Tables

Robbins Engineering Co., Detroit, Mich.

## Special Tools and Machinery

American Tool Works, Inc., Hartford, Conn.

## Speed Reducers

Abert Gear & Mch. Co., 4832 W. 16th St., Cicero, Ill.  
Armco Co., Milwaukee, Wis.  
Chicago Gear Wks., 709 W. Jackson, Chgo.  
Cushman Wheel Co., 1250 Altgeld St., Chgo.  
Janette Mfg. Co., 552 W. Monroe St., Chgo.

## Speed Saws, Universal

Wynnebeck & Staff, Inc., 542 Washington Blvd., Chicago

## Spinning Lathes, Metal

Oliver Machinery Co., Grand Rapids, Mich.

## Spools & Nuts for Auto. Screw Mchs.

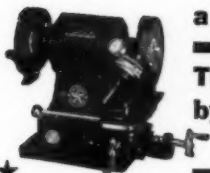
Sutton Tool Co., Detroit, Mich.

## Split Rivets

Chicago Rivet & Machine Co., 1855 S. 54th St., Cicero P. O., Chicago, Ill.

## Split Rivet Setters, Automatic Feed

Chicago Rivet & Machine Co., 1855 S. 54th St., Cicero P. O., Chicago, Ill.



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**Spot Welding Machines, Speed.**  
Armco Co., Milwaukee, Wis.  
Elster Engineering Co., Inc., Newark, N. J.  
Fier Equip. Mfg. Co., Benton Harbor, Mich.

**Sprockets**  
Cutlman Wheel Co., 1259 Altgeld St., Chgo.

**Stampings**  
Hamilton Tool Co., Hamilton, Ohio

**Steel Stamps**  
Colonial Bushings Co., Detroit, Mich.

**Straightening Machines**  
Whitney Metal Tool Co., Rockford, Ill.

**Stud Setters**  
Apex Machine Co., Dayton, O.  
Titan Tool Co., Fairview, Penna.

**Tables, Drawing**  
Hamilton Mfg. Co., Two Rivers, Wis.

**Tables, Elevating**  
Midwest Tool & Engineering Co., Dayton, O.

**Tap Extractors**  
Walton Co., Hartford, Conn.

**Tap Holders**  
Procon Safety Chuck Co., 14 S. Clinton St., Chicago  
Scully-Jones & Co., 1901 S. Rockwell St., Chicago, Ill.

**Tapping Machines**  
Etico Tool Co., Brooklyn, N. Y.  
Rickert-Shafer Co., Erie, Pa.  
Western Mche. Tool Wks., Holland, Mich.

**Tapping Attachments**  
Errington Mech. Lab., Staten Island, N. Y.  
Etico Tool Co., Brooklyn, N. Y.  
Procon Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.  
Western Mche. Tool Wks., Holland, Mich.

**Tapping Jigs, Universal**  
Heuser Mfg. Co., 1535 No. Paulina St., Chicago, Ill.

**Tapping Machines and Attachments**  
Burke Machine Tool Co., Conneaut, Ohio  
Cleereman Mche. Tool Co., Green Bay, Wis.  
Etico Tool Co., 594 Johnson Av., Brooklyn, N. Y.  
Haskins Inc., R. G., 4684 W. Fulton St., Chicago, Ill.  
Procon Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.  
Whitney Metal Tool Co., Rockford, Ill.

**Thermometers, Resistance Type**  
Illinois Testing Laboratories, Inc., 150 West Austin Ave., Chicago, Ill.

**Threading Machines, Automatic**  
Grant Mfg. & Mche. Co. Bridgeport, Conn.  
Jones & Lamson Mche. Co., Springfield, Vt.  
Rickert-Shafer Co., Erie, Pa.

**Threading Tools**  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago  
Hidge Tool Co., Elvira, Ohio.  
Rivett Lathes & Grinders Inc., Brighton, Boston

**Tool Heads, Universal**  
Precision Tool Co., Bridgeport, Conn.

**Tool Holders**  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago  
Michigan Tool Co., Detroit, Mich.  
Rigid Toolholder Co., Detroit, Mich.  
Western Tool & Mfg. Co., Springfield, O.

**Tools**  
Venco Tool Co., Detroit, Mich.

**Tools, Abrasive**  
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

**Tools, Boring**  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago  
Gairing Tool Co., Detroit, Mich.

**Tools, Lathes and Planer**  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

**Tools, Machinists'**  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago  
Brown & Sharpe Mfg. Co., Providence, R. I.

**Tools, Multi-Diameter**  
Gairing Tool Co., Detroit, Mich.

**Transfer Punches**  
McMahon Co., Frank, Dayton, Ohio

**Tube Flanging Machines**  
Grant Mfg. & Mche. Co., Bridgeport, Conn.

**Tubular Rivet Setters, Automatic Fd.**  
Chicago Rivet & Machine Co., 1855 S. 54th St., Cicero P. O., Chicago, Ill.

**Tungsten Carbide Tools**  
Michigan Tool Co., Detroit, Mich.

**Turning Tools**  
R & L Tools, Nicetown, Phila., Pa.

**Universal Drill Jigs**  
Heuser Mfg. Co., 1535 No. Paulina St., Chicago, Ill.

**Universal Joints**  
American Tool Works, Inc., Hartford, Conn.  
Apex Machine Co., Dayton, O.  
Chicago Gear Works, 760 W. Jackson Blvd., Chicago

**Used and Rebuilt Machinery**  
Aaron Machinery Co., 175 Lafayette St., New York City

Alamo Engine Co., Ithaca, Mich.  
Bentley Machine Mfg. Co., Hammond, Ind.  
Belyea Co., Inc., 150 W. 18th St., New York, N. Y.

Bennet-Raffin Corp., 30 Church St., N. Y. N. Y.  
Bennett & Co., Geo. M., 123 Clinton, Chgo.  
Blaser Mfg. & Mch. Co., Springfield, Ill.

Bradley Machinery Co., Detroit, Mich.  
Brantt Nchy. Sales, Pittsburgh, Pa.  
Brown Machinery Co., St. Louis, Mo.

Brownell Machinery Co., Providence, R. I.  
Central Electric Co., Hattiesburg, Miss.  
Clinton Mch. Co., 38 S. Clinton St., Chgo.

Devia Machinery Co., Toledo, Ohio.  
Delta Equipment Co., Philadelphia, Pa.  
Eastern Machinery Co., Cincinnati, O.

Economy Machinery Co., Cincinnati, Ohio  
Emerson, Louis E. & Co., 1761 Elston Ave., Chicago, Ill.  
Erie Electric Motor Repair, Inc., Buffalo, N. Y.

Easley Machinery Co., E. L., 825 Reed St., Chicago, Ill.  
Falk Mill Supply Co., Inc., Rochester, N. Y., Pa.

Foster Machinery Co., Cleveland, Ohio  
General Blower Co., 401 N. Peoria St., Chgo.  
Goldman, Harvey H., Detroit, Mich.

Goldsher Mch. Co., 817 Lake St., Chicago  
Hill, Clarke & Co., 645 W. Washington St., Chicago, Ill.  
Howarth Mch. Co., Inc., C. C., Detroit, Mich.

Hyman & Sons, Joseph, Philadelphia, Pa.  
Indianapolis Machinery & Supply Company, Indianapolis, Ind.  
Industrial Mch. Co., Indianapolis, Ind.  
International Machinery Co., Detroit, Mich.  
Interstate Mch. Co., 109 S. Clinton, Chgo.  
Iroquois Machinery Co., Buffalo, N. Y.



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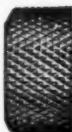
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Johnson & Sons Machinery Co., Wm. C.,  
St. Louis, Mo.  
Jones Machine Tool Co., Cincinnati, Ohio  
Kania Machinery Co., Philadelphia, Pa.  
Kinsey Co., E. A., Cincinnati, Ohio  
Lake Mch. Co., 654 W. Lake St., Chgo.  
Land, L. J., 145 Grand St., New York, N. Y.  
Lang Machinery Co., Pittsburgh, Pa.  
Lucas, J. L., Bridgeport, Conn.  
McDonald Machinery Co., St. Louis  
Machinery Dealers, Inc., New Haven, Conn.  
Marr-Galbreath Mch. Co., Pittsburgh, Pa.  
Midwest Equipment Co., 423 W. Lake St.,  
Chicago, Ill.  
Miles Machinery Co., Saginaw, W. S., Mich.  
Molitor Machinery Co., Charles L., 120 S.  
Clinton St., Chicago, Ill.  
Moorhouse, Frank K., Detroit, Mich.  
Morey & Co., 45 Mill St., Astoria, Long  
Island, N. Y.  
Morton Machinery Co., Cleveland, Ohio  
Morton-Broadway Machinery Co., Cincinnati,  
Ohio  
O'Brien Machinery Co., Philadelphia  
Ohio Mch. & Supply Co., Cincinnati, Ohio  
Ott Machinery Sales Co., Detroit, Mich.  
Osborne & Barton Mch. Co., Columbus, O.  
Prasman Brothers, 705 Washington Blvd.,  
Chicago, Ill.  
Fulton Mch. Co., D. H., Cleveland, Ohio  
Reilance Machinery Sales Co., Pittsburgh,  
Pa.  
Riverside Machinery Depot, Detroit, Mich.  
Rosenkrans & Weisbecker, 2309 A. Singer  
Bldg., New York City  
Scott-Sansbach Mch. Co., 4007 W. 20th St.,  
Chicago  
Segal Machinery Co., 117 S. Clinton St.,  
Chicago, Ill.  
Service Co., Cleveland, Ohio  
Simmons Machine Tool Corp., Albany, N. Y.  
Standard Machine Co., Baton Rouge, La.  
Standard Mch. Co., Grand Rapids, Mich.  
Strong, Carlisle & Hammond Co., Cleveland  
Sun Machinery Co., 23 Van Buren Street,  
Newark, N. J.  
Surplus Stock & Mch. Co., Inc., 1138 W.  
Lake St., Chicago, Ill.  
United Mch. & Supply Co., St. Louis, Mo.  
Victor Machinery Co., 130 S. Clinton Street,  
Chicago, Ill.  
Victor Machinery Exchange 251 Centre St.,  
New York, N. Y.  
Vine, R. A., Detroit, Mich.  
Wain Mch. Sales, Chas. E., Detroit, Mich.  
Waters Machinery Co., Elkhart, Ind.  
Wertman Machinery Co., Cleveland, Ohio  
West Penn Machinery Co., Pittsburgh, Pa.  
White Mch. Co., A. D., 108 N. Jefferson  
St., Chicago  
Wiggleworth Mch. Co., Cambridge, Mass.  
Winick Machinery Sales, 9 S. Clinton St.,  
Chicago, Ill.

## Vacuum Cleaners, Portable

Breuer Elec. Co., 846 Blackhawk St., Chgo.

## Vacuum Cleaners, Industrial

Breuer Elec. Co., 846 Blackhawk St., Chgo.

## Valves, Air

Hanna Engineering Works, 1763 Elston Av.,  
Chicago, Ill.  
Ross Operating Valve Co., Detroit, Mich.

## Valves

Galland-Henning Mfg. Co., Milwaukee, Wis.  
Hanna Engineering Works, 1763 Elston Av.,  
Chicago, Ill.  
Ross Operating Valve Co., Detroit, Mich.

## Valves, Foot, Lever & Solenoid

Nicholson & Co., W. H., Wilkes-Barre, Pa.  
Hanna Engineering Works, 1763 Elston Av.,  
Chicago, Ill.  
Ross Operating Valve Co., Detroit, Mich.

## Valves, Operating

Hanna Engineering Works, 1763 Elston Av.,  
Chicago, Ill.  
Ross Operating Valve Co., Detroit, Mich.  
Tomlinson-Johnson Co., Jackson, Mich.

## Vises, Drilling Machine

Armstrong-Stum Mfg. Co., 341 N. Francisco  
Av., Chicago  
Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Desmond Stephan Mfg. Co., Urbana, O.  
Husser Mfg. Co., 1535 No. Pauline St.,  
Chicago, Ill.  
Graham Manufacturing Co., Providence, R. I.  
L. W. Chuck Co., Toledo, Ohio  
Martin Tool & Die Works, J. E., Springfield, O.  
National Machine Tool Co., Racine, Wis.  
Odin Universal Corp., 110 S. Dearborn, Chgo.  
Sheldon Machine Co., 3255 Cottage Grove  
Av., Chicago, Ill.  
Walker-Turner Co., Inc., Plainfield, N. J.  
Yost Mfg. Co., Meadville, Penna.

## Vises, Drill

Johnson Tool Co., East Providence, R. I.  
Plunket Mch. Co., 1823 W. Lake St., Chgo.  
Yost Mfg. Co., Meadville, Penna.

## Vises, Machinists'

Chicago Tool & Engr. Co., 3380 So. Chicago  
Av., Chicago, Ill.  
Desmond Stephan Mfg. Co., Urbana, Ohio  
L. W. Chuck Co., Toledo, Ohio  
Odin Universal Corp., 110 S. Dearborn, Chgo.  
Sheldon Machine Co., 3255 Cottage Grove  
Av., Chicago, Ill.  
Western Tool & Mfg. Co., Springfield, O.

## Vises, Milling Machine

Graham Manufacturing Co., Providence, R. I.  
Hartford Special Mch. Co., Hartford, Conn.  
L. W. Chuck Co., Toledo, Ohio  
Odin Universal Corp., 110 S. Dearborn, Chgo.  
Plunket Mch. Co., 1823 W. Lake St., Chgo.  
Sheldon Machine Co., 3255 Cottage Grove  
Av., Chicago, Ill.

## Vises, Precision

Odin Universal Corp., 110 S. Dearborn, Chgo.

## Vises, Shaper

Graham Manufacturing Co., Providence, R. I.  
L. W. Chuck Co., Toledo, Ohio  
Odin Universal Corp., 110 S. Dearborn, Chgo.  
Plunket Mch. Co., 1823 W. Lake St., Chgo.

## Welders, Arc

Hobart Brothers, Troy, Ohio  
Lincoln Electric Co., Cleveland, Ohio

## Welders, Portable

Commonwealth Mfg. Corp., Cincinnati, O.  
Hobart Brothers, Troy, Ohio  
Lincoln Electric Co., Cleveland, Ohio  
Universal Power Corp., Cleveland, Ohio

## Welding Machines, Electric Spot

Armco Co., Milwaukee, Wis.  
Eisler Engineering Co., Inc., Newark, N. J.  
Hobart Brothers, Troy, Ohio  
Lincoln Electric Co., Cleveland, Ohio  
Pier Equipment Co., Benton Harbor, Mich.

## Welding Machines, Resistance

Armco Co., Milwaukee, Wis.  
Eisler Engineering Co., Inc., Newark, N. J.  
Lincoln Electric Co., Cleveland, Ohio  
Pier Equip. Mfg. Co., Benton Harbor, Mich.

## Wheel Pullers

Armstrong-Bray & Co., 315 N. Sheldon St.,  
Chicago, Ill.

## Wheels, Grinding

Chicago Wheel & Mfg. Co., M. C. Tool Div.,  
1101 W. Monroe St., Chicago, Ill.

## Woodworking Machinery

Porter-Cable Machine Co., Syracuse, N. Y.  
Tannawitz Works, Grand Rapids, Mich.

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Michigan Tool Co., Detroit, Mich.

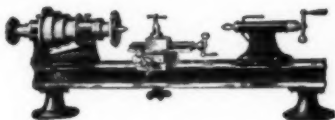
## Worm Gear Motor Units

Star Mch. & Eng. Co., Bloomfield, N. J.

## Wrenches, Reversible

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Precision lathes for doing most accurate turning, drilling, grinding, milling, threading, filing, polishing, in the tool room or in production.

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For 35 years Grant rivet spinners have proved in daily use their superiority to other riveting machines.

Noiseless spinning or vibrating hammer types for sizes from smallest to  $\frac{1}{2}$ " diameter. Horizontal and vertical single and multiple spindle machines produce best quality riveting at high speed.

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## UNIVERSAL Portable A. C. Welder



**\$79.50**

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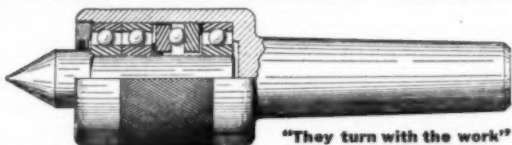
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**Modern Machine Corp.,** 323 BERRY ST.,  
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Drill Press Vises**

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with flanges on base  
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"V" shaped slot holds  
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## For Machine and Tool Work and Quick Set-Ups



**Use a Reich Precision Indicator**

Feeler mounted in centered cone  
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**Price \$5.00**

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## Used and Rebuilt Machinery Section

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the enclosed printed form to make known your wants in either new or used machinery and the publisher will gladly pass them along to the advertisers.

### FOR SALE BY

#### Aaron Machinery Co.,

176 Lafayette Street, New York, N. Y.

Automatic, No. 53 Nat. Acme 4 spdl.  
Drill press, 34" Barnes.  
Engravers, Gorton, Deckel.  
Gear hobber, 24" Rhenania.....\$475.  
Grinder, vertical, 12" P. & W.  
Grinder, plain, Landis 20"x72".

Keyseater, 3" capacity.....\$375.  
Lathe, 26x45x14" McCabe 2-spindle.  
Miller, Rockford No. 2, vert. att.  
Shaper, slotter, Rhodes, rotary tbl.  
Shaper, Potter & Johnston 15".  
Turbine, Spencer, 1350 c.f.m. 24 oz.

### FOR SALE BY

#### H. F. Weinick Machinery Co.,

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Automatic screw machines.  
Drill, 4-spindle No. 3MT.  
Drill, 24" geared sliding head.  
Drill presses, Baker.  
Gear hobbers.

Milling machines, plain, Nos. 2, 3 & 4.  
Lathes, engine, 12" to 36"x5' to 30".  
Lathe, turret, Jones & Lamson.  
Lathe, turret, Hardons & Oliver.  
Lathe, turret, Warner & Swasey.

### FOR SALE BY

#### Goldsher Machinery Co., - 817 W. Lake St., - Chicago, Ill.

Drill presses, new 16" Buffalo Forge with 1/2" chucks, 1/3 h. p. motors.  
Punch & Shear, No. 52, with 3 h. p. motor.  
Shaper, No. 28 Gould & Eberhardt.  
Motor, 400 h. p. Allis-Chalmers, 3 phase, 60 cycle, 2200 volt, 500 rpm., complete with starting equipment.

### FOR SALE BY

#### Foster Machinery Co.,

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Cleveland O.

Air compressor, 6"x6" Bury, tank and gauges.  
Bolt cutter, 1 1/2" Acme Class "A" with USS & SAE dies.  
Boring mill, No. 3-A universal table type, 3" bar.  
Draw bench, 10,000 full 12' draw.

Drill, multi, No. 2 Bausch, cap. 24 drills, head 17"x32".  
Hoist, 1/2 ton electric, 30' lift.  
Riveter, 50 ton Hanna.  
Rotary planer, 50" Cleveland, m. d.  
Saw, 12x10 Klemm metal band, arr. for motor drive.

### FOR SALE BY

#### D. H. Prutton Mchy. Co., 5295 W. 130th St., Cleveland, Ohio

Automatic, Cleveland 1/2" model A.  
Automatic, Cleveland 2 1/2" model A.  
Chuck, 1/2" Cleveland model M automatic.  
Drills, 1/2" cap. Demco 4 spindle, power feed, b. b. (3)  
Gear hobber, 5AC Lees Bradner.

Gear hobbers, No. 0 and No. 1 Schuchardt & Schutte.  
Grinder, disc, No. 120 Gardner.  
Pointers and threaders, 1/2" Economy automatic, (4)  
Press, No. 106 Bliss.  
Press, cam drawing, No. 1 Bliss.

# USED AND REBUILT MACHINERY

## FOR SALE BY

### Ott Machinery Sales, Inc.,

Automatics, B. & S. Nos. 00, 0, & 19; Cleveland Model A 3. 18, 24, & 48; Fay 14"x19"; Acme Nos. 53, 54 and 55; Grindley, 4 spdl. 3", 1 1/2" & 2 1/2".  
Boring mills, No. 0 G. & L. 3 1/2" bar.  
Boring mills, Bullard 42" & 52" 2 swivel heads.  
Drills, h. s., b. b. Henry & Wright No. 2, 2, 4 and 6 spindle.  
Drill, rad. Bickford 5'; Prentice 4'.  
Gear shapers, Fellows Nos. 6.  
Gear generators, Gleason 15" spiral bevel; roughers and finishers; Barber-Colman No. 3 and 12.  
Grinders, Brown & S No. 11, s. p. d.  
Brown & Sharpe No. 16 pl., m. d., No. 2 B. & S., surface; No. 3  
Many more good tools.

### 548 Second Ave., Detroit, Mich.

B. & S. Universal, Heald No. 60, 65, 70, & 75.  
Lathes, Hamilton G. H. 14"x6"; Hendey 18"x10" taper attachment 16" & 18"x8" Springfield.  
Lathes, turret, J. & L. 2"x24" and 3"x36"; Warner & Swasey Nos. 2, 4 and 6, Gisholt 21"; Steidle 24" 6 1/2" hole.  
Milling mchs., B. & S. No. 2 univ. Kempsmith Nos. 12 & 33 Mtg.; Model B Becker vertical.  
Presses, Ferracute Pl, 2 and 3, and D G 53; assorted o. b. i., s. a. single and double crank, also toggle  
Metalwood 30 ton hyd. Elmes Hydraulic 300 ton.  
Shaper, 20" & 24" Steptoe VRam, m. d.  
Your inquiries solicited.

## FOR SALE BY

### Belyea Company, Inc.,

#### D. C. MOTORS Adj. Speed—230 Volt

H. P.	MAKE	TYPE	SPEED
1—250	West. 3bear.	SA	250/750
1—125	West.	SK 210	225/900
2—120	G. E.	DMC	300/750
3—80	Diehl	K11-40	550/1100
1—75	G. E.	CD	875/ 970
1—60	West.	SK	107/ 160
2—60	El. Dy.	25S	450/1200
5—60	El. Dy.	25S	525/1050
2—50	West	SK-190	225/ 600
1—50	West.	SK 160	600/1200
12—40/50	Cr. Wh.	EM	175/ 700
2—40	West	SK	120/ 240
1—40	West.		300/ 300
2—35	West.	SK	500/1500
1—30	El. Dy BB.	10-S	800/1600
12—20	G. E.	LC	650/1950
1—20	G. E.	RF-12	500/1500
2—7 1/2	G. E.	RF-10A	450/1800
12—7 1/2	West.	SK 80L	400/1600
12—7 1/2	West.	SK-70L	500/1500
1—7 1/2	G. E.	RLC	600/1800
1—5 1/2	West	SK	600/1800
14—5	West.	SK-70L	400/1600
10—3 1/2	West	SK-40	450/1800

#### MOTOR GEN. SETS.

3—1250/1500 k. w. Westinghouse, 3 unit M. G. sets consisting of:  
2—625/750 k. w. DC Gen. 125 v., 600 RPM coupled on each end of:  
1—1930 k. v. a. synch. motor, 2200 v., 600 rpm. 3 ph., 60 cy.  
1—22 1/2 k. w. type SK, 125 v., 600 rpm. exciter.  
1—1000 k. w., G. E. type M. P. C., D. C. Gen. 250 v., conn. to 1400 h. v. type ATI, synch. motor, 6800/2300 v., 514 r.p.m. 3 ph., 60 cy.

### 150 W. 18th St., New York, N. Y.

250 KW G. E. 3 unit Synch. Motor Gen. Set consisting of 2 125 KW Interpole, DC, 125 V. generators coupled on each end of 1—390 H P Synch. Motor, 6600 V., 3 Ph., 25 Cy., 750 RPM.  
2—250 KW G. E. DC Gen., 250 v. conn. to Synch. Motor, Type ATI, 2300 V., 720 RPM. 3 ph., 60 cy.

#### A. C. MOTORS—60 CYCLE Synch. Type

H.P.	TYPE	VOLTS	SPEED
2850	G. E., ATI	2300/4150	450
1500	G. E., ATI	440/ 220	180
850	G. E., ATI	2300	720
500	G. E.	440	1200
450	West.	440/220	257
225	E. Mch'y 3Br	2300/4150	450
220	G. E., ATI	2300	900

#### SLIP RING TYPE

450	West. CW	2200	875/700
400	West. CW 1416	2200	290
400	G. E. MT 424	4150/2300	390
400	West. CW	2300	514
400	G. E. IM	2200	885
300	Al. Ch ANV	2200	585
250	G. E. MT-424V	4000/2300	257
250	F. Morse RV	2200	1200
250	West. CW	440/220	585
225	G. E.	440/220	1800
200	West CW	440/220	575
200	West CW	2200/550	870

#### SQUIRREL CAGE TYPE

1—250	West. CS	2300/440	580
1—200	G. E., IK	550	600
1—200	West. CS 876A	220/440	1160
1—100	G. E. IK 15	440/220	720
1—100	West. Vert. CS	440/220	1200

# USED AND REBUILT MACHINERY

## FOR SALE BY

**Scott-Bansbach Machinery Co., 4607 West 20th St., Chicago, Ill.**

Air compressor, Daco No. 605 P complete, motor and tank.....	\$ 85.
Automatic screw machines, B. & S., Nos. 00, 0, 2.....	\$500 to 1000.
Automatic screw machine, B. & S. No. 19 high speed, cap. $\frac{1}{2}$ " x $\frac{1}{4}$ ", b. d. ....	350.
Automatic screw machine, cone, 1", 4 spdl., b. d. ....	1250.
Automatic screw machine, Davenport, $\frac{1}{2}$ ", 5 spindle, b. d. ....	500.
Automatic screw machine, Gridley, 4 spindle model G, 9/16" cap. ....	600.
Automatic screw machine, Gridley 4 spdl. Model F, $\frac{1}{2}$ " and 2 $\frac{1}{2}$ ".....	\$150 & 750.
Automatic screw machine, Gridley, 4 spdl., 1 $\frac{1}{2}$ ", Model G. and F. ....	600.
Automatic screw machine, Cleveland, Model A, 1 $\frac{1}{2}$ -1 $\frac{3}{4}$ " dbl., c. s., b. d. ....	750.
Automatic screw machine, Cleveland Model "B", 2" ca. belt drive..	300.
Buffer, 5 H. P. Hill Curtis, rite speed, tex rope drive.....	
Broach, Hercules Power, 15 ton, motor drive.....	400.
Drill, New Albany, h. s., motor drive, 110-60-1.....	100.
Drill, Leland Gifford, h. s., b. b. sensible, $\frac{1}{2}$ " capacity.....	75.
Drill, Demco h. s., b. b., $\frac{1}{2}$ " capacity.....	110.
Drill, 2 spindle Leland-Gifford h. s., b. b., sensitive, $\frac{1}{2}$ " cap. ....	150.
Drill, 2 spindle Leland-Gifford h. s., b. b., 14", No. 2 M. T. ....	250.
Drill, 2 spindle H. & W. h. s., b. b., 16" swing, heavy duty, class B....	200.
Drill, 3 spindle Avey, h. s., b. b. bench type on pedestal, $\frac{1}{2}$ " cap. ....	200.
Drill, 3 spindle Leland-Gifford h. s., b. b., 14", No. 2 M. T. ....	350.
Drill, 3 spdl., Leland-G., 24" swing, h. s., b. b., 12" travel. 26"x54" (bl.	500.
Drill, 4 spindle Demco h. s., b. b., 16" swing, $\frac{1}{2}$ " capacity.....	400.
Drill, 6 spindle, Avey, No. $\frac{1}{2}$ , H. S. B. B., belt drive.....	600.
Drill, 6 spindle, Allen, 14", $\frac{1}{2}$ " cap., H. S. B. B., belt drive.....	750.
Drill, 20" Canedy-Otto, back geared, power feed.....	100.
Drill, 24" Mechanics, sliding head, back geared, power feed.....	250.
Drill, No. 24, 24" Foot-Burt, heavy duty with tapping attachment....	500.
Drill, gang, 3 spindle Barnes, 22 $\frac{1}{2}$ " swing b. g., p. f., No. 4, m. t. ....	275.
Drill, radial, C. O., No. 50, wall post type, 2 $\frac{1}{2}$ foot arm, hand feed....	125.
Drill, 21" Kokomo, hi-speed, sliding head, back geared power feed....	275.
Drill, 24" Cincinnati-Bickford sliding head, back geared, power feed....	300.
Drill, radial, 3 ft., Wisconsin, high speed, sensitive, $\frac{1}{2}$ " capacity.....	300.
Filing machine, No. 3 Bary, floor type, belt drive.....	100.
Gasoline engine, 10 h. p. Gray, automatic start.....	125.
Grinder, gear cutter, No. 23 Brown & Sharpe, 8" capacity.....	300.
Gear cutter, B. & S. No. 3, 26" for spur gears.....	300.
Gear hobber, No. 90 Pfauter, cap. 8"x6"x10 DP.....	100.
Grinder, 8"x20" Fitchburg, takes 17" automatic feeds, b. d. ....	400.
Grinder, 10"x30", Frager, No. 2, Universal, self contained ctrshft....	500.
Grinder, No. 13 Brown & Sharpe, universal and tool, belt drive.....	1100.
Grinder, surface, No. 2 Diamond, cap. 10"x24", magnetic chuck, b. d.	600.
Grinder, Safety, surface, capacity 16" wide, 50" long, 12" high, belt dr.	500.
Grinder, Heald, No. 65, cylinder, 16" spindle and fixture.....	350.
Hammer, No. 3-A h. d., $\frac{1}{2}$ " cap. with motor bracket.....	150.
Hammer, No. 4 A, High Speed belt drive, $\frac{1}{2}$ " cap. ....	200.
Hammer, No. 5A High Speed, motor shelf, $\frac{1}{2}$ capacity.....	275.
Hammer, Bradley, 30 lb. compact belt drive.....	200.
Hammer, Bradley, 40 lb. rubber cushioned helve, belt drive.....	325.
Hammer, Bradley, 50 lb., upright strap, belt drive.....	400.
Hammer, Bradley, 60 lb., rubber cushioned strap, belt drive.....	500.
Lathe, Stark bench, 7"x30"x $\frac{1}{2}$ " cap., c. r., s. r., c. s. and chuck....	150.
Lathe, 13"x5" Monarch q. c., s. b. g., 4 jaw chuck taper att. rebuilt....	300.
Lathe, 14"x6" Worchester semi q. c., with 4 jaw chuck..... each	150.
Lathe, 14"x6" LeBlond, q. c., D. B. G. 4 jaw chuck, 16" swing....	300.
Lathe, 14"x6" American, q. c., S. B. G. 4 jaw chuck, 16" swing....	400.
Lathe, 15"x6" Springfield, q. c., b. g., taper attachment.....	325.
Lathe, 17"x8" Cincinnati, semi q. c., d. b. g., with chuck.....	275.
Lathe, 18"x6" Monarch, q. c., D. B. G. 4 jaw chuck, 16" swing....	600.
Lathe, 18"x8" Davis, d. b. g., q. c., heavy duty.....	450.
Lathe, 20"x8" Prentice, plain change with 2 chucks.....	150.
Lathe, 24"x13" Dietz, Schumacher & Boye, plain change, with chuck..	300.
Lathe, 30"x13" H. S. & G. heavy duty, q. c., d. b. g. 16,000 lbs.....	800.
Lathe, 18"x5" spinning, Grabo, 24" between centers.....	175.
Lathe, 22"x44" spinning gap, Prybil, 40"-76" between centers.....	400.

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**Joseph Hyman & Sons, - Tioga & Almond Sts., Philadelphia, Pa.**  
POWER PRESS SPECIALISTS

400 ton No. 24 Bliss embossing.  
150 ton E32 Ferracute embossing.  
No. 3½ B Bliss toggle.  
No. 205 E Toledo, dble. crank, gap.

No. 79½ Bliss, 16" stroke tie rod.  
No. D201 Ferracute tie rod.  
Shuster straight & cut off 11"x14".  
Hundreds of presses of various types.

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**The O'Brien Machinery Co.,**

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Band saw, 42" American, V belt, m.d.  
Bolt cutter, 1½" cap. Landis.  
Boring mill, 24" Bullard, rap. prod.,  
threading attachment.  
Boring mill, 36" Bridgeport.  
Crane, 36' Gantry, 20 ton, hand oper.  
Drill, 6' Mueller radial, mtr. dr.  
Drill, 32" Cin. Bick. upright, s.p. drive.  
Grinder, No. 55 Heald.  
Hammer, 100 lb. Bradley, helve.  
Hammer, 800 lb. Erie, steam forging.  
Hammer, 1100 lb. NBP. steam forg.  
Hammer, 2000 lb. Chambersburg  
double frame steam.  
Lathe, 19"x8" Sidney, heavy duty,  
belt dr. quick change.  
Lathe, 30"x24 New Haven, belt.

Miller, 2A B. & S. universal table  
42"x11", single pulley drive.  
Miller, 4½ Becker vertical, belt drive,  
table 10"x26"  
Miller, No. 3 LeBlond plain, belt  
drive, table 12"x60", quick chge.  
Miller, No. 2 Kempsmith, plain,  
table 10"x45", belt drive.  
Miller, No. 3 Cincinnati plain, table  
76"x19", s. p. drive.  
Pipe machines, 2, 4, 6, 8 and 12"  
belt and motor drive.  
Punch, No. 3 Royersford, double  
end, 12" throat, cap. 1½"x1½".  
Shapers, 14, 16, 20 & 24" various makes  
Turret, No. 1B Foster, S. P. drive,  
24" cap.

### FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,**

**1211-1223 Hadley Street,**

**St. Louis, Mo.**

Air compressors, 30' to 2000'.  
Bolt threader, Nat. 2".  
Bolt threader, 2 heads, Nat. 1".  
Boring mill, 5'-8" Betts extension.  
Boring mill, 42" Colburn, (2).  
Boring mill, No. 0 Barret.  
Boring mill, hor. 4½ bar Betts  
knee type.  
Bulldozers, No. 3-4 and 8.  
Drill, radial 3' American.  
Drill, radial 3' Morris round column.  
Drills, Colburn D4.  
Drills, Baker 24".  
Furnaces, various sizes.  
Gear cutter, 60" G.E. spur.  
Gear cutters, No. 1 & 3 Adams hobbors  
Grinder, No. 1 Wilmarth & M. univ.  
Grinder, 12"x72" Landis, m. d.  
Grinder, 24"x96 Norton cyl.  
Grinders, 13x66 Landis universal.  
Grinders, 16x66 Landis cyl. plain.  
Hammers, 500 & 25 lb. Little Giant.  
Hammer, 200 lb. Bradley.  
Hammer, steam 4000 to 250 lb.  
Hammer, 50 Perfect.  
Keyseater, No. 2 M & M.  
Lathes, turret, No. 3 & 7 universal  
Bardons Oliver.  
Lathes, 14"x6 Hendey.  
Lathe, 18"x8" geared head American.  
Lathe, 18"x8" L. & S.

Lathes, 26"x12 Flather, q. c. g.  
Lathe, No. 3-A Warner & Swasey.  
Lathe, turret No. 6 Woods, tilted.  
Lathes, turret, 24" Steidle.  
Lathes, 3 Gridley 24", Model F., 4 sp.  
Miller, Pratt & Whitney spline.  
Miller, No. 4 Brown & S., plain.  
Miller, No. 3 Hendey, plain.  
Miller, Walham thread.  
Miller, No. 2 Kempsmith, univ.  
Millers, No. 1 U. S. hand.  
Millers, Ingersoll, 27"x24"x10".  
Planer, 36"x30"x8 Cleveland open side.  
Planers, 60"x48"x10" Gray, 2 heads.  
Planers, 34"x24"x6" Gray, 1 head.  
Planers, 30"x30"x6" Cincinnati, 2 hds.  
Planers, 36"x36"x10" Gray, h.d. 2hds.  
Planers, 36"x36"x10" Cincinnati.  
Press, 91C Toledo.  
Press, No. 2-3 & 4 Marshalltown,  
o. b. i., new.  
Radial drill, 3'-4'-5".  
Saw, No. 14 Higley.  
Saw, No. 2 Marvel.  
Saws, 6x6 Acme.  
Shaper, 16"-20"-24".  
Shear, 3' Niagara, 16 ga.  
Shears 310 Niagara ring & circle 1/4"  
Shears, 44" Bertsch sq., 16 ga.  
1000 other tools available.



# USED AND REBUILT MACHINERY FOR SALE BY

## Marr-Gailbreath Machinery Co.,

Air compr., 7x6" Ing.-Rand, ER-1.  
Air comp., 8x8" Chicago, NSB.  
Air comp., 10x8" Ing.-Rand, ER-1.  
Air compressor outfits for garages,  
4, 1 & 1 1/2 h. p. 1/60/110-220.  
Bolt threader, 2 1/2" Landis dbl., m. d.  
Bor. mill, 24" Bullard, V.T.L., m. d.  
Boring mill, 34" Bullard, side head,  
m. d.  
Boring mill, 42" Bullard, 2-swivel  
heads, for m. d.  
Boring mill, 30" Colburn, turret hd.  
Boring mill, 30" Bullard VT L,  
threading attachment.  
Boring mill, floor, 6" bar N. B. P.,  
230 v. d. c., 2 column.  
Brake lining, punch and riveting  
machine, m. d.  
Chain hoists, 3 and 4-ton.  
Compr., cent. 75 h. p. G. E., 3/60/220.  
Crusher, No. 1 Williams Little G., b. d.  
Die sinker, No. 3 P. & W., r. t.  
Drill, 24" Aurora, t. a., m. d.  
Drill, 28" Superior, b. g., power fd.  
Drill, No. 11-B, Natco, 16-sp., m. d.  
Drill, rad., 2 1/2" Fosdick & Holloway.  
Drill, radial, 3" Dreses, tapping att.  
Drill, radial, 3 1/2" Canedy-Otto.  
Forging mch., 1 1/2" Acme; 2 1/2" Ajax.  
Grinder, Nos. 1, 1 1/2 & 2, tool & cut.  
Grinder, 7 1/2 h. p., U.S. dbl. end, 3/60.  
Grinder, pl. 11 B. & S. 4x30" (cheap).  
Hack saw, 6x6" and 9x9" Racine.  
Hammer, 40 lb. Bradley horiz.  
helve, m. d.  
Hammer, power, 50 lb. Boss, b. d.  
Hammer, power, 50 lb. Little Giant,  
belt drive.  
Hammer, 100 lb. Mayer, power.  
Hammer, 200 lb. Beaudry, power.  
Hammer, 400 lb. Bliss board drop, b. d.  
Hammer, 800 lb. Erie SF steam or air.  
Hammer, 1000 lb. Chamber's st. drop.  
Hammer, atm. drop, 1500 lb. (nr. new).  
Hammer, Syntrolex Electric, 1/60/110/.  
Header, cold, 3" W. F. D. S.-OD.  
Hoist, chain, 4-ton triplex, V. & T.  
Hoist & crane, 3-ton Canton Portbl.  
Jointer, bench, 4" Wallace.  
Keyseat miller, No. 4 Burr, 4 1/2".  
Keyseater, No. 2 Catlin, cap. 2"x15".  
Keyseater, No. 3 Mitts & M., belt.  
Lathes, 9"x3'; 10"x4', plain change.  
Lathe, 14"x19" Fay automatic.  
Lathes, 16"x7" National, q. c. g., (3).  
Lathe, 17"x8" Sidney q. c. 3-step cone.  
Lathe, 22"x12" Rahn-Larmon, q. c. g.  
Lathes, 42"x30" Bridge'd g. h., m. d.  
Lathe, turret, No. 4 W. & S., bar  
feed, m. d. (2).  
Miller, No. 2 Brown & S. pl. cone.  
Miller, No. 1 1/2 American, pl. cone (2).  
Miller, pl., No. 15 Garvin, 42x10x21".

## 55 Water St., Pittsburgh, Pa.

Miller, No. 4 Ohio, table 101".  
Pipe machine, 2" Robbins, bench,  
for m. d.  
Pipe machine, 12" Cox., b. d.  
Pipe machine, 12" E. C. & B., s. p. d.  
Pipe machine, 18" Wieland, m. d.  
Planer, 16"x16"x4" P. & W., 1-head.  
Planer, Gray, 56x48x10', 4 heads  
Polishing stand, 3 HP. U.S., 3/60/220.  
Press, No. 78 1/2 Bliss T. R., 10" str.  
Press, Farrell D. C. bed 34x36" wgt.  
13,700 lbs.  
Press, P-3 Ferracute m. d., (late  
model).  
Press or shear, United ob., 3 1/2" shaft,  
m. d.  
Press, arbor, 3 1/2" Greenard, hand.  
Press, 30-ton Lourie hydraulic.  
Pump, tripl., 1 1/2"x4" Worthington, b. d.  
Punch, triple combination Pels 16,  
m. d.  
Punch, & sh. hand, No. 3B. Beloit  
5/16"x 1 1/2".  
Punch & shear, 35x24 U. Buffalo,  
Punch, s. c. rapid, No. 000 H. & J.,  
16" throat.  
Riveter, 4-A, high spd., belt, or m. d.  
Riveters, Shuster, 1 1/2" & 3/16", belted  
Riveter, No. 120 Grant, cap. 8", m. d.  
Rolls, 48"x3" Niagara, initial, power.  
Saw, No. 10 Racine 9x9", belted.  
Saw, cold, No. 7 Espen-L., 15" belt.  
Saw, cold, No. 1 Newton, 4 1/2" belt.  
Saw, hack, No. 4 Marvel, m. d.  
Saw, No. 1 Marvel hack, 4"x4", b. d.  
Saw, 6"x8" Racine hack, gear box,  
belt drive.  
Shaper, 15" Springfield, sbg; belt.  
Shaper, 15" Blount, friction type.  
Shaper, 20" G. & E. b. g., m. d.  
Shaper, 21" Smith & Mills.  
Shaper, 24" Barker b. g. V-ram, b. d.  
Shaper, 24" Gould & Eberhardt, b.  
g., high duty, b. d.  
Shaper, 28" Hendey friction vise.  
Shear, angle, 6x6x1 1/2" Kling., m. d.  
Shear, throatless 18-M Marshall-  
town, motor drive.  
Shear, bar 3" United, 24" blade, m. d.  
Shear, bar & splitting, cap. 1" plate.  
Shear, slit, 6" Buffalo 24-S (Armorpl.)  
Steam turbines, 100 h. p. 900 rev (2).  
Straightener, 1 1/2"x20" Shuster, cut-off.  
Turret lathe, 15"x3 1/2" Libby, m. d.  
Turret lathe, 24"x6 1/2" Steidle, m. d.  
Turret lathe, 26"x4 1/2" Libby, m. d.  
Valve refacer, Kwik-Way, cabinet  
base, m. d.  
Vises, machinists, 2 1/2"x4 1/2" & 8". (11).  
Welder, Arc 300 amp. 3/60/220.  
Welders, arc, 35 amp., transformer.  
Welding & cutting generator, Carbic  
Wheel press, 60 ton 34"x8 1/2", b. d.

Partial List. Get Our New Complete Stock List.

## USED AND REBUILT MACHINERY

### FOR SALE BY

**United Machinery & Supply Co., 1241 Walton Ave., St. Louis, Mo.**

Brake, 5' D. & K. box and pan.  
Brake, 10' 10 ga. D. & K., a.c., m.d.  
Presses, Toledo, No. 167 and No. 168.

Punch, horizontal, H & J. 1 1/2", 4".  
Rolls, corrugating, 6' Bertsch.  
Threader, pipe, 2" & 3" Oster, m. d.

### FOR SALE BY

**Economy Machinery Co.,**

**Office and Warerooms: 428-30 East Pearl St.**

**Cincinnati, Ohio**

Brake, 5' Robinson.  
Die filer, Cochrane-Bly No. 2.  
Lathes, 12"x6" to 26"x10", modern.  
Milling machine, Rockford No. 1 1/2.  
Presses, kick (10).

Presses, stamping (6).  
Radial drill, Drees 30".  
Shaper, 24" Gould & Eberhardt.  
Shears, rotary, Pettingell.  
Square shears, tanners tools.

### FOR SALE BY

**M. A. Wertman Machinery Co., 623 Penton Bldg., Cleveland, Ohio**

Automatic, 1 1/2" cone, m. d., rebuilt.  
Die heads, No. 3H Modern 1 1/2".  
Drill, B14 Natco 22-spd., rect. hd.  
Grinder, No. 33 Abrasive surf. m. d.  
Hack saw, 8x8 Atkins.  
Lathe, 14"x6" Prentice g.h., s.p.d.  
Lathe, 14"x6" Monarch, qcg. & dbg.

Lathe chuck, 28" 3-jaw universal.  
Lathe chucks, 10"x12" independent.  
Miller, No. 2 B. & S. vertical.  
Planer, 42"x14" D & H openside md.  
Planer, 24"x6" Gray. Al cond.  
Thread miller, Taft Pierce type B.  
Turret lathes, 3 1/2"x36 J & L, bar equip.

### FOR SALE BY

**W. E. Brandt Mach'y. Sales, 513 Empire Bldg., Pittsburgh, Pa.**

Boring mill, 60" Colburn, 2 hds.  
Brake, 10' x 1 1/2" D. & K. leaf.  
Brake, 8' x 16 ga. D. & K. leaf-hand.  
Gear generator, 11" and 18" Gleason.  
Grinder, No. 2 Woods tool & cutter.

Keyseater, No. 2 Baker, 2" keyway.  
Roll, bending 10' x 1 1/2" Cleveland, d. e.  
Shear, 12' x 14 ga. Niagara.  
Shear, 10' x 3/16" Ohl.  
Welder, 300 amp. Lincoln, m. d.

### FOR SALE BY

**Wigglesworth Machinery Company**

**199 Bent Street,**

**Cambridge, Mass.**

Boring mill, 3 1/2" bar Universal.  
Grinder, 14" Pratt & W. model B.  
Jig borer, No. 2 Pratt & Whitney.  
Miller, No. 3B heavy B. & S. plain.

Miller, No. 4B Kearney & Trecker  
vert.  
Miller, No. 4B B & S. rapid traverse.  
Radial, 5' & 6' American universal.

Send for Complete Stock List.

### FOR SALE BY

**Brownell Machinery Co.,**

**150 Pine Street, Providence, R. I.**

Automatic screw machines, Gridley  
4 spd., model F. 1 1/2", 1 1/4", 2 1/2".  
Drill, radial, Fosdick 2 1/2" cone.  
Drill, radial, Prentice 4" spd.  
Grinder, No. 55 Heald cylinder.  
Grinder, No. 1 Norton Tool.  
Lathe, 32"x28" New Haven.

Lathe, 32"x18" Putnam Heavy  
Geared Head.  
Miller, No. 3 Hendey universal.  
Miller, No. 2-M P. & J. automatic.  
Shaper, 30" G. & E., b. g.  
Slotter, Beament Miles 12".  
Tapper, Baker Bros.

# USED AND REBUILT MACHINERY FOR SALE BY

West Penn Machinery Company

1210 House Building,

Pittsburgh, Pa.

Air compressors, 30 to 2500 cu. ft.  
Baler, 12-P Logeman hdy.  
Beader, Yoder, 12 ga. m. d.  
Barrels, tumbling, 45"x34".  
Blower, No. 4 Roots, cap. 2110 c.f.m.  
Bolt cutter, Acme 2", motor drive.  
Bolt cutters, Landis, 1 1/2" b.d., 2 1/2" m.d.  
Bor. mills, 24" Bullard New Era.  
Boring mill, 42" Gisholt, 2 hds., rpt.  
Boring mill, 60" Colburn, 2 hds., spd.  
Boring mill, 62" Betts, 2 heads, b. d.  
Bor. mill, hor. 5" bar Barrett, m. d.  
Brakes, 3' x3/16" Chicago, m. d.  
Bulldozers, Nos. 2, 4, 6, 9, 28, & 30.  
Crane, 7 1/2 ton Morgan, 65', 220v. DC  
Cranes, Electric Traveling.  
Crane, crawler, gas., No. 2 No'wes.  
Draw bench 20000 lb. W-F.  
Drill, radial, 4" Prentice, t. a., b. d.  
Drill, rad. 5" Cincinnati-Bick., m. d.  
Drill, rad. 6" Reed-Prentice, s. p. d.  
Drill, mult. 24 sp. No. 20 Natco.  
Drills, upright 10" to 36".  
Engine, gas, 20 h. p. Bessemer.  
Flanger, McCabe, 1/2" capacity, dies.  
Gear cutters, 11", 18" & 24" Gleason.  
Gear cutter, 60" Eberhardt.  
Gear tester, bevel 18" Gleason.  
Grinder, roll, Farrell 28"x64".  
Grinder, d. e. 2 h. p. 220/440/3/60.  
Grinder, disc, No. 8-20" Resly, b. d.  
Grinder, plain, 10x24 Landis.  
Grinder, sheet, Mattison.  
Grinder, T&C, No. 2 Oakley, b. d.  
Grinder, D.E., 3HP. 220/3/60.  
Grinder, surface 8" Heald.  
Grinder, sur. 14" Pratt & W., m. d.  
Grinder, surf. Diamond, table 48x16".  
Grinder, int. No. 60 Heald, b. d.  
Hammer, 100 lb. Little Giant.  
Hammer, Blacker, power, 35-lbs.  
Hammer, Brad. 500 lb. upright.  
Hammer, power, 90-lb. Justice, b. d.  
Hammer, pwr., 100 lb. Brad. cush.  
Hammers, Nos. 2-B, 3-B, 4-B, Nazel.  
Hammers, steam, 600 lb. to 6000 lbs.  
Hammer, stu. dr., 1500 to 10000 lb.  
Hogging machine No. 3 C, M&M.  
Lathe, 11"x5" Meyers, p. c. g., b. d.  
Lathe, 14"x16" Prentice grd. hd.  
Lathe, 18"x8" L. & S., b. d.  
Lathe, 22"x12" R-L, q. c. g., d. b. g.  
Lathe, 24"x12" L. & S. b. d.  
Lathe, 24"x15" Prentice, grd. hd.  
Lathe, 36"x14" American, g. h. d., m. d.  
Lathe, 42"x16" S. B. q. c. g., b. d.  
Lathe, 42"x36" Bdgfd. grd. hd.  
Lathe, 60"x16" Putnam, b. d.  
Lathe, spinning 32" b. d.  
Lathe, turret, 16" Libby, m. d.  
Lathe, turret, 24" Steinie, 6 1/2" hole.  
Lathes, turret, No. 4 W & S. b. d.  
Miller, vert. No. 6 Becker, m. d.

Miller, B.&S. Universal No. 4 b. d.  
Miller, pl. No. 2 Kemp Smith, b. d.  
Motors, a. c. & d. c.  
Nibbler, Gray 3/16"-34" throat.  
Nut tapper 8 sp. 1" National.  
Pickler, 4 arm Mesta, 10' radius.  
Pipe machine 2" Landis b. d.  
Pipe mches., 6" Williams.  
Planer, 42x42"x12" Cinc., 3 hds., b. d.  
Press, No. 20C Bliss, OBI.  
Press, No. 5 L. & J. OBI.  
Press, No. 3 Bliss, Stiles type.  
Press, cam, No. 69N Bliss, dbl act. inc.  
Press, hor., No. 43 Toledo 1 1/2" stroke.  
Press, No. 93 Toledo, b. d.  
Press, hyd. 100-ton Southwark.  
Press, No. 55 Toledo, bed 20x19.  
Press, No. 57 Toledo, 32"x32", str. 6".  
Presses, hyd. 200-ton Oilgear.  
Press, dbl. crank No. 5 Bliss, 2" str.  
Press, o. b. l. Nos. 18, 19, 20 Bliss.  
Press, screw, No. 87 Niagara.  
Press, 6 spindle, W-F.  
Punch, beam, No. 5, H. & J.  
Punch, Rock River, 1/2"x1/2".  
Punch, EF Cleveland, 36" thrt., 1 1/2"-1"  
Pumps, Cent. 6", 4", 1", m. d.  
Riveters, air, hammer, spinning.  
Rolling mill, cold 9"x18".  
Saw, band, metal, 10x10 Napier.  
Saws, friction, Nos. 2, 3 & 4 Ryerson.  
Scale, sheet bundling, 2500 lbs.  
Saw, cold, 48" Newton.  
Saw, hack, Racine 6x6.  
Saw, hack, Racine, 12x12.  
Shaper, 32" Cincinnati, b. d.  
Shapers, 16", 20", 24" & 36" C. & E.  
Shear, circle No. 3 Bliss, 40"x20 ga.  
Shear, circle, Niagara, 4" cutters.  
Shears, alligator, 1 1/2", 2", 3", 4" & 6".  
Shear, angle 6x6x1/2", Cleveland.  
Shear, bar 1 1/2", New Doty.  
Shear, bar No. 2 H. & J. 2".  
Shear, bevel, Lennox 1/2", b. d.  
Shear, comb. 24-U-Buffalo.  
Shear, sq. 11"x10 ga. Niagara, m. d.  
Shear, sq. 16"x1 1/2" L. & A. m. d.  
Shear, plate, 80"x1 1/2" Peis.  
Shear, plate 66"x1 H. & J.  
Shear, rotary 24" thrt. cap. 1", m. d.  
Shear, Streine 10'-16 ga.  
Shear, Buffalo all steel 3" sq., m. d.  
Slitter, gang 36" b. d.  
Slotter, 6" Newton, 8" & 21" Betts.  
Slotter, 24" Newton, motor drive.  
Straightener, 42" Aetna std. 17 roll.  
Straightener, shape, Sutton No. 2.  
Straightener, 54" United 17-rolls 3 1/2" dia.  
Straightener, 1 1/2", 4" rd. Abramson.  
Tumbling barrel, 24"x45", b. d.  
Upsetters, 1" to 6".  
Welder, 40 kw. Thom. 2 pcs. 1/2".  
Welder, butt 1 1/2" Winfield.

## USED AND REBUILT MACHINERY

### FOR SALE BY

**Central Electric Co., 404 Main St., Hattiesburg, Miss.**

3-75 KVA transformers, 11,000 to 330 or 440 volts.

1-15 KVA lighting transformer.

Make us an offer.

### FOR SALE BY

**Standard Machinery Co., 321 Lake Michigan Dr., Grand Rapids, Mich.**

Automatic, 18" Gridley Model F.  
Boring mill, 42" Bullard vertical.  
Boring mill, 34" Colburn vertical.  
Boring mill, 24" Lucas horizontal.  
Drill, Baker heavy duty.  
Furnaces, Detroit Electric (4).  
Grinder, Sellers drill.

Lathes, 9" Porter-Cable Mfg., (3).  
Lathe, 2x24 J. & L. turret.  
Miller, model C Becker heavy vert.  
Pipe machine, 8" Williams.  
Presses, Waterbury Farrel S. S.  
7" shaft, 30" between uprights (2).  
Welder, No. 259A12T. Gibb Spot md.

### FOR SALE BY

**Falk Mill Supply Co., 18 Ward St., Rochester, N. Y.**

Die sinker, No. 5 Jackson, with cherrying attachment.

Drill, radial, N. B. P. universal 6", motor drive.

Grinder, Norton 14"x34" plain.

Grinder, Heald No. 80 internal.

Lathes, Bridgeford 26"x14" geared head, taper att. q. c. g., motor drive.

Miller, vertical, Knight No. 2 universal, arranged motor drive.

Miller, Cincinnati No. 1 univ., vert. att., dividing heads, etc.

Miller, Becker vertical No. 5-C. b. d.

Miller, Kemp Smith No. 33 Maxi-miller, arr. m. d.

Shaper, Pratt & Whitney 6" vertical, serial No. 400, motor drive.

### FOR SALE BY

**H. L. Morton Machinery Co., 1078 Carlyon Road, Cleveland, O.**

Bullard Mult Au-Matics, 6 spindles, 8" machines, 80% new (2).

Grinder, chucking, No. 28 Bryant; new in 1931, used 6 months.

Lathe, 21"x10" LeBlond, q. c. g., cone pulley, m. d.

Lathe, turret, No. 2 W. & S., bar fd. & collets, power feed to turret, cone pulley.

Mill, No. 2B heavy Brown & Sharpe plain, s. p. d.

Mill, No. 4 LeBlond plain, cone pulley, m. d., vertical attachment.

Nibbler, Campbell No. 2, motor drive.

Press, No. 21B Bliss, o. b. l., 24" stroke.

Press, No. 7 Bliss s.s. double geared, 6" stroke, like new.

### FOR SALE BY

**Davis Machinery Co., St. Clair & Washington Sts., Toledo, Ohio**

Bolt cutter, 1" Landis dbl. hd. lead screws.

Gear hobbers, No. 12 B.-C. double overarm, m. d.

Grinder, Capitol internal.

Keyseater, No. 2 Mitts & Merrill.

Lathe, 3"x26" Jones & L. flat turret.

Lathe, 16"x8" Walcott, q. c. g.

Mill, No. 2A Garvin univ. compl.

Mill, model C Becker vertical.

Mill, No. 5B Brown & S. pl., s. p. d.

Nibbler, 6" Campbell metal.

Planer, 36"x36"x8" American, 2 hds.

Press, No. 83 Toledo, s. s.

Radial drill, 3" Bickford, motor dr.

Radial drill, 4" Hammond hinged arm

Screw machine, No. 6 Warner & S.

Screw machine, No. 3 Foster hand.

Shaper, 20" Ohio crank, b. g.

Shear, 205 P.S. & W. circle & flanging.

Threaders, 4" Geometric.

Welder, 200 AMP. West. portable.

## USED AND REBUILT MACHINERY

### FOR SALE BY

**Chas. E. Wain Machinery Sales, 7800 Mack Ave., Detroit, Mich.**

We offer 10,000 feed fingers and collets, sizes to 4½", for most all machines, mostly new, at 25% of regular price.

Send all outside dimensions.

### FOR SALE BY

**Standard Machine Co., Inc. P. O. Box 1668, Baton Rouge, La.**

Crane, floor, hand power, Zeig Mfg.  
Co., 7 foot lift.

Cut-off machine, 4'.

Cutter grinder, Sterling universal.

Drill, Albany 12" variable speed  
friction.

Grinding machine, Landis pl. 10"x30"

Hammer, Barr pneumatic forging,  
size No. 1.

Hammer, steam, 1200-lb. McDougal  
& Potter, 12".

Lathe, Steidle turret, heavy duty.

Milling machine, Pratt & Whitney  
4" 2-spine.

Saw, cold, Higley 5".

Shaper, Niles-Bement-Pond 20",  
traverse head.

Slab miller, Newton planer type,  
20"x20"x5" bed.

Slotter, T. C. Dill No. 10-12.

Slotter, 30" Newton heavy duty.

All in good condition, were used in our plant.

To close out will sell as a unit or as a lot.

### FOR SALE BY

**Lang Machinery Company, 28th St. & A. V. R. R. Pittsburgh, Pa.**

Air compr., 12"x10" Cingo. "nsb" m.d.

Beader & flanger, No. 207 Niag. 18ga.

Blower, No. 3 Sturtevant, 8½" dia. b.d.

Bor. mill 24" Bullard, s. p. d.

Bor. mill, 30" Bullard, thrd. att., spd.

Bor. mill, 42" Bullard, 2 hds., b.d.

Bor. mill, 54" Bullard, 2 hds. r. p. t.

Bor. Mill, 76" Bullard, 2 Hds. m.d.

Bor. mill, 84" Sellers, 2 hds. b. d.

Bor. mill, 10'-16" Betts, 2 hds. b. d.

Boring mill, hor. 3" Rockford. tbl.

Bolt cutter, 1" Landis, sgl. hd., b.d.

Bolt cutter, 1½" Acme, sgl. hd., b.d.

Brake, leaf, 10"x4" D.&K., b.d.

Brake, hand, 5"x16ga D&K box & pan

Brake, hand, 5"x16 ga. Keene.

Buffer, Marschke dbl. end, 220/3/60.

Drill, rad 2' Fosdick, t. a., b. d.

Drill, rad. 3' Bickford, t. a., b. d.

Drills, upright, 14" to 32".

Drill, 4 sp. No. 2 Foote-Burt, m. d.

Grinders, single and double end.

Grinder, disc, dbl., 18" Diamond, b.d.

Grinder, plain, cyl. 10"x50" Norton.

Grinder, surf. No. 3 Wilmarth & M.

Hammer, 100 lb. Bradley, cush. hel.

Hammer, 5000-lb. Chamb. dbl. leg.

Keyseater, Baker, No. 2 m. d.

Keyseater, No. 4 Mitts & M. b. d.

Keyseater, No. 3 Baker, b. d.

Lathe, Tur. (5) 24" W & S univ., b. d.

Lathe, 13"x6" South Bend, p. c. g., b. d.

Lathe, 14"x6" Carroll, q. c. g., b. d.

Lathe, 18"x8" Lodge & S. q. c. g., b. d.

Lathes, (2) 18"x10" H., tie bar, b. d.

Lathe, 24"x10" Bradford, p. c. g., b. d.

Lathe, 28"x12" Bridgeford, q. c. g., b. d.

Lathe, 28"x10" Sch. & B., q. c. g., b. d.

Lathe, 30"x14" L. & S. q. c. g., m. d.

Lathe, 36"x12" Bridg. grd. hd., q. c. g.

Lathe, 36"x16" Sch. & B. l. c. g., b. d.

Lathe, 38"x14" Boye & E. q. c. g., b. d.

Miller, plain, No. 3 LeBlond, b. d.

Miller, No. 24 B. & S. tbl. 17"x72"

Miller, univ. No. 1½ B & S., b. d.

Miller, univ. No. 3-A R. & S., d. h.

Miller, thread, 6"x48" Pratt & W.

Millers, vert Nos. 4-B, 5-C & 6-Becker.

Planer, 42"x56"x10" Cin., 4 hds. m. d.

Planer, 60"x48"x14" N.-B.-P. 3 hds. b. d.

Planer, openside, 46"x48"x16" Clev.

Press, embossing, 500-ton Am. b. d.

Press, No. 75 Toledo, open back, 2" str.

Press, wheel, 300-ton N. B. P.

Punch, No. 5 J. & H. 62" th. 1½"-1½".

Rolls bend, 10"x4" Bertsch int. type.

Rolls bend, 42"x4" Bertsch int. type.

Saw, band, mtl., 12"x12" Laidlaw, b. d.

Saw, hack, 13"x13" Peerless, m. d.

Saw, shaping, 13"x13" Peerless m. d.

Seamer, dbl. No. 291-48" Niag. 18ga.

Sheet metal shop, complete.

Shaper, 28" Queen City, b. g., b. d.

Shaper, 24" Cincinnati, b. g., b. d.

Shaper, 26" Smith & Mills, b. d.

Shaper, 20" Cincinnati, b. g., b. d.

Shaper, 12" Gould & Eberhardt, b. d.

Shear, Squar. 54"x10 ga. Niag. b. d.

Shear, Power, 36"x1½" United, b. d.

Shear, Alligator, Lewis, cap. 14".

Shear, Squar. 10"x4" Geo. Ohl' b. d.

Shear, plate, 10"x3/16" Niagara, m. d.

Shear, Squar. 10"x14 ga. Streine, m. d.

Shear, ring & circle, No. 13 Niagara.

Straightener, No. 4 Kane & R. 8-roll.

Welders, arc, 200-300 amp. Lincoln.

## USED AND REBUILT MACHINERY

### FOR SALE BY

**Frank K. Moorhouse**

**525 E. Jefferson,**

**Detroit, Mich.**

Gridley parts and pads.  
High speed drills and reamers.  
Lathe dogs, centers, collets, sleeves,  
gears.

Milling cutters.  
Screw machine tool holders and  
bushings.

Machine parts too numerous to mention. When in Detroit call at store and  
be convinced that you can save money here.

### FOR SALE BY

**J. Bleser Mfg. & Machy. Co., 16th & Madison St., Springfield, Ill.**

Air compressor, 44x44".....\$40.  
Angle shear, 3x5 Badger E-1.  
Electric motors, 1 & 3 phase.  
Lathe, No. 3 Hardinge Pres.....\$125  
Lathe, 36"x18' L. & S. arr. m.d. \$1500

Milling mach. No. 6 Transit Prod.  
Radial drill, 7' Bement.  
Shaper, 12" G. & E. ....\$125.  
Slotter, 13" Bement.  
Trip hammers, 20, 50 & 150 lb.

### FOR SALE BY

**Faylor-Strafer Machinery Co.,**

**136 Liberty St., New York**

Boring mill, 54" Colburn.  
Conveyor and chain 150', 4" links.  
Grinder, No. 14 P. & W. surface b.b.  
Grinder, 30"x96" Landis m. d.  
Hammer, 1200 lb Chambersburg b.d.  
Motor-150 h. p. 900 rpm. 3 Ph., 60c.

220 volts.  
Multi. punch No. 5 H. & J. 7' 8".  
Press, forging 1600 ton Mesta S-H.  
Planer, Cin. 30"x20' 4H box table.  
Sq. shear, 8'x16 ga. Geo. Ohl.

### FOR SALE BY

**Service Co.,**

**3732 Cedar Ave., Cleveland, Ohio**

#### WELDERS

Rebuilt 200-amp. Westinghouse A.C.  
stationary.  
General Electric 200-amp. A.C. (4).  
General Electric 400-amp. A.C.  
U. S. L. 200-amp. A.C. (2).  
Lincoln 300-amp., gas engine dr. (3).

Lincoln 200-amp., gas engine dr. (2).  
Lincoln 400-amp., gas engine dr. (4).  
Lincoln 300-amp., A.C., D.C. (3).  
Transformer type A. C. welders,  
220-440 volt (4).

We rebuild, buy and sell welders.

### FOR SALE BY

**International Machinery Co.,**

**3178 Bellevue Ave., Detroit, Mich.**

Automatic, 3"-1 1/16", 4 sp. Cleveland  
model M, m. d.  
Automatic, Gridley 4-sp. auto., 14",  
model F, multiple spindle.  
Boring mill, 42" Gisholt.  
Drill, radial, 34" American, gear box.  
Drills, 21", 24", 28" Cincinnati.  
Drill, 32" Reed-Prentice, t. a.  
Drills, Hyspeed, 1, 2, 3, 4-spindle.  
Drill, No. 242 Barnes Camel Back,  
m. d.  
Drill, No. 3 Leland-G., single sp.,  
m. d.  
Drills, Natco mult., all sizes, hyd.  
& mech.  
Forming rolls No. H-1220 Yoder, m. d.  
Gear hob, 5-5 AC Lees-Bradner m. d.  
Gear cutters 4"x36" B. & S. (2).

Grinders, surface, No. 78 Covell-H.  
hydraulic, motor in base (3).  
Grinder, No. 4 B. & S. univ. comp. m. d.  
Grinders, No. 11 B. & S. plain, m. d. (2).  
Grinder, No. 70A Heald internal,  
duplex.  
Grinder, No. 70 Heald internal m. d.  
Grinder, surface, 54" diameter, m. d.  
Lathes, turret, No. 4, 6, W. & S.  
Miller, 18" Cincinnati mfg. type.  
Miller, 18" Cincinnati automatic.  
Miller, 24" Cincinnati duplex, m. d.  
Press, P4 Ferracute, m. d.  
Press, No. 36 Niagara, m. d.  
Squaring shear, No. 196 Niagara,  
8' 18 ga.  
Tappers, Nos. 1, 2, 2X Garvin.

## USED AND REBUILT MACHINERY

### FOR SALE BY

**General Blower Co., 401 N. Peoria St., Chicago, Ill.**

#### BLOWERS—FANS—EXHAUSTERS.

For Dust Collecting — Ventilating.

Oil and gas burners, cupolas, furnaces, etc.

Roots—Connersville and centrifugal blowers.

What are your blower requirements?

### FOR SALE BY

**Ohio Machinery & Supply Co., 309-11 E. Second St., Cincinnati, O.**

Boring mill, Rudolph & Krummel horizontal 24" bar.

Drill press, 24" Superior upright

b. g. tapping attachment.

Grinder, Cincinnati No. 14 tool and cutter grinder, complete.

Keyseater, Baker No. 1.

Lathe, 16"x5' Van Wyck, h. s. c. r.,

d. b. g. with two chucks.

Miller, Burke No. 4 bench miller,

Fox hand miller.

Riveter, Grant spinner.

Shear, Pettingell rotary 31" throat.

Surface grinder, Wilmarth & Morman No. 2.

Punch press, Niagara No. 6 O.B.I.

### FOR SALE BY

**McDonald Machinery Co.,**

**1535 N. Broadway, St. Louis, Mo.**

Air comp., Ingersoll-Rand 7x6.

Boring mill, Lucas No. 21 horizontal.

Boring mills, Barrett 5" bar horiz.

Boring mill, Niles 54" vert., 2 hds.

Boring mills, Baush 44" vert., m. d.

Drills, Barnes 20" & 24" Camel back.

Drills, radial, Fosdick 3', Prentice

3'; Mueller 24" all s. p. d.

Drills, Allen 6-SP. H. S., B. B.

Gear cutter, G. & E. 36" s. p. d.

Gear cutter, G. & E. 60" & 48" m. d.

Grinder, B. & S. Nos. 10 & 16 plain.

Grinder, P. & W. 12" vertical surf.

Honing mach. Hutto 2-sp. vert md.

Keyseaters, Davis No. 1. M & M No. 0

Lathes, Reed-Prentice 16"x8', q. c. g.,

grd. hd.; Hendey 18"x8', q. c. g.;

50 others in stock.

Milling machines, B. & S. No. 3 univ.

Milling mchs., Rock, No. 2-B s.p.d.

Hendey No. 1-B, Kemp. No. 3;

all universal; Cincinnati No. 3 pl.

LeBlond No. 3-H; Brown & S.

No. 3-B, s. p. d., Brown & Sharpe

No. 3, all plain, Hendey No. 3

Kempsmith, No. 33 Prod.

Planer, 60"x48"x10' Gray 2 heads.

Punch press, Fer. No. S9-53 d. c.

Shapers, G. & E. S. & M., Cin., Ohio

American, Steptoe, Queen City,

12", 16", 18", 20", 24" and 26";

Cinti. 24" m. d. g. b. Rhodes vert.

Screw machine, Brown & Sharpe.

No. 2 auto.; B. & S. No. 00 Auto.

Gridley 4-SP. 14".

Turret lathes, W. & S. No. 2 A univ.

### FOR SALE BY

**Reliance Machinery Sales Company**

**1405 Brighton Place, N. S.**

**Pittsburgh, Pa.**

Air compressor, 8"x8" Bury, 129'.

Brake, press, 72" Rob. toggle m. d.

Brake and folder, 73" Niagara,

22 gauge, motor 3-60-220.

Bulldozer, No. 9 W.-W., 70,000 lbs.

Drill, 4 spindle Colburn, Mfg. type,

cap. 2", like new.

Hammer, 80 lb. Brad. cushion helve.

Lathe, 27"x18" Pittsburgh, taper.

Lathes, spinning, 30" Bliss & Tol.,

roller bearing.

Lathe, 18"x12" L. & S., q. c. g., cone.

Nibbler, No. 1 Gray 34" tht., 3/16"

capacity, m. d.

Press, No. 754 Bliss S. S., tie rod,

10" stroke, 10" dia. shaft.

Press, No. 3 Loshbough OBI, 24"

stroke, weight 2000 lbs.

Press, No. 92-C Toledo, dbl. crank,

geared, 4" shaft 3" str.

Press, Robinson dbl. cr., 80" wide,

4" shaft, grd. 3" stroke.

Saw, hack, 12"x12" Racine, m. d.

Shapers, 16", 20", 24", 25", 32" crk.

Shear, double angle, 6x6x3/4" Clev.,

mounted on turnable, m. d.

Shear, 10"x18 gauge, Niagara.

Welders, 300 and 400 amp. Lincoln.

motor end 3-60-220-v.

## USED AND REBUILT MACHINERY

### FOR SALE BY

**Kamis Machinery Company**

**3rd and Moore Streets**

**Philadelphia, Pa.**

Boring mill, 52" Gisholt vertical, 2 hds. on cross rail, p. r. t., m. d.

Lathe, 14"x6' Hendey, taper att., standard equipment.

Lathes, Rivett No. 608 screw cutting, 8" capacity, 8 1/2" swing, precision back geared with draw in spindle, collets and all attachments, 1 with turret attachment (2).

Miller, No. 2 Brown & Sharpe universal, cone drive, with dividing heads.

Miller, No. 2 Brown & Sharpe plain, cone drive, with vertical attachment.

Milling machines, No. 2 B Milwaukee plain, double overarm, single pulley drive, standard equipment (2).

Planer, 54x48x10' Cincinnati widened pattern, 4 heads, belt drive.

### FOR SALE BY

**E. L. Klauber Machinery Co.,**

**320-322 South Third St., St. Louis**

Cyanide furnace, No. 22 Stewart.

Filing machine, floor type, m. d.

Lathe, 10"x3' semi-q.c.g. bench.

Lathe, 13"x6' South Bend, arr. m.d.

Lathe, 18"x8' Draper, q. c. g.

Miller, Newton horizontal 16"x55".

Pipe machine, 2" Saunders, m. d.

Saw, Racine 6x6 high speed, belt.

Saw, Burr, 3" rotary, m. d.

Screw machines, No. 2 & No. 6 W. & S.

Shapers, 16"-20" Ohio sgl. pulley dr.

Shaper, 18" American, cone.

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Made by Electric Furnace Co. formerly owned by Bates Mfg. Co. of Joliet Ill. USED LESS THAN 30 days. Cost about \$35,000 new Complete with pyrometer. \$5,000.

Alligator Shear, No. 4 D & K. r. 5".  
Angle Roll, No. 16 Kane & R., m. d.  
Arc Welders, 200, 300 & 400 amp.  
Boiler, 20 HP. Vert. Steam, 100 lbs pressure, 1 HP. Coal Stoker.  
Boring mills, Bullard 24", 42", 53".  
Brakes, power, Chgo. St. 10' 3" 16".  
10' 10 ga.; 6', 3' 16"; 6' 12 ga.  
Dieing out press, H. & W. 25 ton.  
Drills, Multiple, Nos. 1 & 2 Natco.  
Drills 25" Baker; 2, 3, 4 spindle.  
Eyelet machines Penn. motor drive.  
Filing maches, Oliver bench type 1/4 HP mtr. No. 3 Theil Precision m. d.  
Gang Slitters, 32 & 36".  
Generator set West 57 HP. A. C 38 KW 152 Amps.  
Grinder, disc, Gardner 30", b. b.; cyl. Landis 12x42"; 14x72 Norton  
Groovers, power, 8' and 3' Nia.,  
Hammers, 100 lb. Bradley, helve.  
Ironworkers, Smith 4x6 notcher,  
Shatz 6x6 angles; No. 1 1/2 Buffalo  
No. 3 Ryerson-Kling 4"x4" with  
copes.  
Lathes, 25"x16"; 24"x10"; 14x12.  
Millers, prod. Lincoln type; Vert.  
No. 3 Knight; No. 1 B. S.; m. d.  
Horiz. Boring No. 3-A Univ.  
3" bar. univ. No. 2 Cincinnati; No. 4  
Univ. V. hd.; d. hd.; plain Kearney  
& T., S. P. D. No. 1-A & 1 1/2.  
Multiple Punches, Wells, 6'.  
Nibblers, Campbell, No. 1 & 2.

Planera, 72"x18', 3 heads, 48"x14'  
D. & H. Openside; 30" x 8'  
Press, hydraulic, 200 ton, Watson-  
Stillman, double ram, 38"x62".  
Press brake, 10' 18 ga. Ohl. 10' 3/16"  
Punch & Shear, No. 2 Kane & K.  
Radial drills 2', 3 1/2; 2; 5 and 6".  
Rivet spinners, No 107 Grant.  
Roller die mach. 5-sp. Mishawaka.  
Rolls, 48"x10 ga.; 8' plain hous.  
9" dia. \$250.  
Saws, shaping 6"x6"; hack 9"x9".  
Saw, friction No. 1 Ryerson.  
Shapers, 18"x24" G. & Eber. s. p. d.  
Shears, 10' 14; 12' 14; 13' 3/8" 20"  
gap; 13' 1/16; 5' 16.  
Shear, beam and angle, Pels 20"x  
75 lb; 8x8x3/4" angles m. d.  
Stake riveter & punch, 48" m. d.  
Turret Lathes, W. & S., 3-A, 4, 6.  
Wire coiler, No. B Wells.  
Wire Straightener, No. 1 Schuster 3'  
cut-off; 3/8" Nilson, 8'; Wells, No.  
5, 3/8"x22".  
Welders, brand new, Dyer, 10 KW  
24" arms \$300., 15 KW 24" arms  
\$375.  
Gun welder, 50 KVA Federal  
Port. 440 volts.

## PRESSES

Double crank, Bliss No. 104 b. g.;  
3" str. 33 3/4" betw. upr.; No.  
408-B Bliss 84" betw. upr.  
25" str., No. 3 Bliss 2 1/2" str.  
Straight side, No. 56 Toledo 8"  
str.; No. 5-C Bliss tie rod 5" str.  
OBI No. 0, 1, 3, 4, 5, 6, 7.  
Toggle, No. 165 Tol.; No. 13 Bliss  
Coining press, No. 26-K Bliss  
800 tons.

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# MODERN MA

## RADIAL UPR. DRILLS

- 6<sup>1</sup> American Triple Purpose, m. d. on arm, very late.
- 3<sup>1</sup> American Triple Purpose, m. d. on arm, very late.
- 5<sup>1</sup> Cincinnati-Bickford, gear box on base.
- 5<sup>1</sup> Cincinnati Bickford Universal, m. d.
- 6<sup>1</sup> Drees Universal, gear box.
- 5<sup>1</sup> American Triple Geared, gear box.
- 2 1/2<sup>1</sup>, 3<sup>1</sup> Carlton Sensitive.
- 4<sup>1</sup> Hammond Jack-Knife.
- Nos. 216, 217, 220, 310, 314, 315 Baker H. D. Upright.
- D-2, D-3, D-4 Colburn H. D.
- Nos. 2, 4, 14, 22 Colburn Mfg.
- 4 spindle No. 2 Colburn Mfg.
- No. 210 Barnes all Geared-Self-Oiling.
- 21<sup>1</sup>, 22<sup>1</sup>, 24<sup>1</sup>, 26<sup>1</sup>, 32<sup>1</sup>, 40<sup>1</sup> Aurora Upright.
- 21<sup>1</sup>, 24<sup>1</sup>, 26<sup>1</sup>, 36<sup>1</sup>, Cincinnati Bickford Upright.
- 21<sup>1</sup> 25<sup>1</sup> Weigel Upright.
- 22<sup>1</sup> Barnes all Geared Self-Oiling.
- 4 spindle 22<sup>1</sup> Barnes all Grd. Self-Oiling.
- 3 spindle 22<sup>1</sup> Hoefer Gang Drill.
- 3 spindle 22<sup>1</sup> Rockford Gang Drill.
- 4 spindle No. 2 Foote-Burt Heavy Duty.
- 4 spindle No. 4 Foote-Burt Heavy Duty.
- 4 spindle Moline Hole Hcg.
- 5 spindle Detroit Semi-Automatic.
- 6 spindle No. 2 Foote-Burt.
- 6 spindle 21<sup>1</sup> Hoefer Gang.
- No. 00S Garvin Horizontal Duplex.
- 6 spindle National-Acme Semi-Automatic Horizontal.
- No. 1 Pratt & Whitney 2 spindle Gun Barrel.
- D2 Fox Multiple Straight Line.
- No. 2 Baush Multiple.
- No. 5D, 7D Moline Hole Hog, late type.
- No. 10-C, 18, 30 Natco Multiple, m. d.
- No. 25 Baush Multiple.
- No. 26C Fox Multiple.
- No. 37 Natco Multiple.

## BALL BEARING DRILLS

- 2 spindle Allen, 12" overhang.
- 2 spindle No. 1 Avey.
- 2 spindle No. 2 Avey.

- 2 spindle Foadick.
- 2, 4, 5 spindle Henry & Wright.
- 2 spindle Leland & Gifford.
- 2 spindle Leland & Gifford direct m. d.
- 3 spindle Demco, power feed.
- 3 spindle Sipp, power feed.
- 4, 8 spindle Allen.
- 4 spindle No. 3 Avey.
- 6 spindle No. 1 1/2 Avey.
- 6 spindle No. 1 Avey-Matic power feed.
- 6 spindle No. 3 Avey.
- 4 spindle Foadick, power feed.

## PRESSES

- No. 168 Toledo Toggle Drawing.
- No. 1 1/2 Bliss Cam.
- No. 3A Bliss Horning.
- D2, DD2 Ferracute Dbl. Action Drawing
- P2, P3, P4 Ferracute Stiles type.
- No. 5 Bliss Stiles type.
- No. 6 Waterbury-Farrel Double Crank.
- No. 30 Toledo Stiles type.
- No. 92B Toledo, double Crank.

## TUR. LATHES MFG. LATHES

- Nos. 5A, 6A, 7A Potter & Johnston Automatics, m. d.
- No. 6C Potter & Johnston Auto., m. d.
- Nos. 4, 6, 8 Warner & S. Turret, cone.
- Nos. 2A, 3A Warner & S. Univ., m. d.
- Gisholt Simplimatic, m. d.
- No. 4, 7 Bardons & Cliver Turret, cone.
- 1 1/2 x 18" Pratt & Whitney Turret, belt.
- 1 1/2 x 12" Drees Turret, belt.
- 2 x 12" Garvin Turret, belt.
- 2 1/4 x 24" Jones & Lamson Turret, m. d.
- 3 x 36" Jones & Lamson Turret, m. d., bar equipment.
- 3 x 36" Jones & L. Turret, m. d., chuck.
- 2 spindle 3 x 36" Jones & Lamson Turret.
- 3 1/4 x 36" Cincinnati Acme Flat Tur., m. d.
- 3 1/4" Gridley Sgl. Spdl. Auto., belt.
- 14" Fay Automatic, s. p. d.
- Nos. 2, 4 Foster Turret, belt.
- 21", 24" Gisholt Turret, belt.
- Nos. 23, 24 New Britain Auto., belt.
- 21" x 10" LeBlond Auto., Mfg. Lathes, belt.
- Nos. 6, 9 LeBlond Multi-Cut, s. p. d.

# EASTERN MACHINERY CO.,

# MACHINE TOOLS

- No. 12 LeBlond H. D. Auto. Crank Shaft Lathe, m. d.  
 15"x6" Auto. Threading Lathe, belt.  
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 16"x6" Lodge & Shipley Simplified Mfg. Lathe, belt.

## MILLING MACHINES

- Nos. 2, 4 Cincinnati Plain, m. d.  
 No. 3B Milwaukee Plain, double overarm, m. d.  
 No. 13B Brown & Sharpe Pl., National Standard, s. p. d.  
 Nos. 2, 3, 4 Cincinnati Plain, cone.  
 No. 2 LeBlond Plain, cone.  
 No. 3 Kempsmith Plain, cone.  
 No. 2 Brown & Sharpe Univ. cone.  
 No. 4B, 6 Becker Vertical, belt.  
 18", 24", 48" Cincinnati Pl. Auto., m. d.  
 24" Cincinnati Plain Automatic, belt.  
 24" Cincinnati Plain Automatic, m. d.  
 6x80" Pratt & Whitney Thread, m. d.  
 48" Osterlein Tilted Offset, m. d., Nat'l Standard, latest type, brand new.  
 C66A Newton 3 spindle Continuous Miller, m. d.

## GEAR MACHINERY

- Nos. 3, 12 Barber-Colman Gr. Hobbers.  
 No. 12 Barber-Colman Gear Hobber, double overarm.  
 No. 7 Fellows High Speed Gr. Shapers, m. d., like new.  
 No. 6 Fellows Gear Shapers, belt.  
 No. 5A Lees-Bradner Gr. Gener., belt.  
 No. 3 Brown & Sharpe Gear Cutter, belt.

## PLANERS

- 48"x48"x15' Niles 4 heads, reversing motor drive, D. C. electrical equip.  
 48"x48"x14' Niles, 4 hds., reversing m. d.  
 48"x48"x14' Niles, 3 hds., reversing m. d.  
 42"x42"x12' Niles Heavy Pattern, 4 heads, reversing, m. d.  
 42"x42"x14' Niles, 2 hds., reversing m. d.  
 42"x42"x14' Niles, 4 hds., reversing m. d.  
 36"x36"x12' Niles, 4 hds., belted m. d.  
 36"x36"x10' Niles, 2 heads, belt, heavy pattern.

- 36"x36"x14' Niles, 3 heads, m. d.  
 33"x33"x8' Ohio, 2 heads, belt.  
 30"x30"x10' Gray, 1 head, belt.  
 30"x30"x10' American, 1 head, belt.  
 24" Coulter Openside, belt.

## BORING MILLS

- 53" Niles Heavy Pattern, m. d. with D. C. elec. equip., p. r. t.  
 51" Niles, 2 heads.  
 24", 36" Bullard New Era, m. d., tide hd.  
 30", 36" Gisholt, belt.  
 36", 42" Bullard Vertical Rapid Prod. type, belt.  
 36" Colburn, gear box, 2 heads.  
 37" Niles Vertical, 2 heads, m. d.

## ENGINE LATHES

- 11"x4' South Bend, m. d.  
 12"x6' Hendey Geared Head, taper.  
 14"x8' Reed-Prentice Geared Head.  
 16"x6' Hendey Yoke Head, taper.  
 16"x7' Hendey Yoke Head, taper.  
 16"x6' Monarch Geared Head, m. d.  
 18"x8' Greaves-Klusman, cone hd., taper.  
 18"x8' Hendey, Cone Head.  
 20"x6' Hendey Yoke Head.  
 20"x6' Hendey Geared Head.  
 20"x10' American, Cone Head taper.  
 20"x8' American Cone Head.  
 20"x10' Boye & Emmes, Cone Head.  
 20"x10' LeBlond, cone.  
 24"x10' Boye & Emmes, cone.  
 22"x10' Lodge & Shipley, Selective Head, m. d.  
 24"x10' American, cone head.  
 24"x10' Greaves-Klusman, cone head.  
 24"x10' Schumacher-Boye, cone.  
 27"x14' American, cone, taper.  
 24"x12' LeBlond, cone.  
 24"x12' Schumacher-Boye, cone.  
 25" raised to 32"x12' LeBlond, cone.  
 26"x12' Rahn-Larmen, cone.  
 28"-57"x12' Putnam Sliding Bed Extension Cap, cone.  
 30"x11' American, cone.  
 30"x14' Lodge & Shipley, cone.  
 36"x11' American, cone.

Write for our New Stock List No. 37.

3265 Spring Grove Ave., CINCINNATI, O.

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# QUALITY USED TOOLS

## BROACHES

2 ton American vertical.  
10 ton Oilgear hydraulic.  
No. 3 Oilgear hydraulic.  
No. 3L Oilgear hydraulic.  
No. 3 J. N. LaPointe double.  
Nos. 0, 3 & 4 LaPointe screw.

## GEAR CUTTERS

Nos. 6, 75 & 715 Fellows Shapers.  
Nos. 16 HS, 18H and 24H G. & E.  
No. 12 Barber-Colman.  
No. 5A Lees-Bradner.  
6" Gleason bevel.

## PRESSES

No. C4 Ferracute O. B. I.  
Nos. 56, 56½, 58 Toledo S. S.  
Nos. 64, 65 & 67 Consolidated.  
No. 74½ & 78½ Bliss S. S.  
32", No. 90C Toledo dbl. crank.  
48", No. D48 L. & A. dbl. cr.  
72" No. 94F Toledo double crank.  
150 ton Ferracute Coining.  
600 ton No. 6K Cleveland Coining.  
No. 1½ Bliss toggle drawing.  
No. 5A Bliss toggle drawing.  
No. 30½ Bliss arch.  
40 ton Jarecki screw.  
No. DDG54 Ferracute cam drawing  
No. 266 Consolidated cam drawing.

## MILLERS, Universal

No. 1½ Rockford.  
No. 2 Hendey.  
No. 2 Cincinnati  
No. 3A Brown & Sharpe.  
No. 3A hv. Brown & Sharpe.

## GRINDERS

Norton, 6"x3½" to 18-30"x36".  
Landis 6"x18" to 16"x53".  
Nos. 2 and 4 Brown & Sharpe univ.  
10"x36" Thompson universal.  
12"x36" Bath universal.  
30"x72"x18" Springfield surface.  
Nos. 70, 72 & 75 Heald internal.  
Nos. 60 & 65 Heald cylinder.  
30" & 53" Besly disc.  
Pratt & Whitney worm.

## MILLERS, Plain

Nos. 1½ B. & S. and 2A Milwaukee.  
Nos. 2, 3, 3S, 4 and 5 Cincinnati.  
No. 2½ Rockford.  
Nos. 1½, 2 and 3 Brown & Sharpe.  
Nos. 2, 2½ and 4 LeBlond.  
No. 4 Hendey.  
No. 4 Kemp Smith Maximill.

## MISCELLANEOUS

24" and 48" Cincinnati duplex.  
24" and 48" Cincinnati automatic.  
24" and 48" Newton rotary.  
48" Ohio tilted offset.  
48"x48"x8" Beaman & Smith.  
Hanson Whitney centering.  
8"x36" B. & S. bench centers.  
No. 1 P&W 2 spindle gun barrel & tube drill.  
4 spindle Kingsbury horizontal.  
5 spindle Detroit horizontal.  
No. 1 Shuster strip metal straightener.  
2"x10" Shuster wire straightener & cut-off.  
1"x6" Shuster wire straightener & cut-off.

**2000 TOOLS IN STOCK. SEND FOR LIST.**

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# MILES MACHINERY CO.

## SAGINAW, MICHIGAN

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# Offer Factory Reconditioned Tools

## PUNCHES

No. 14 W. W.  $1\frac{1}{4}$ " thru 1", Double End, 25" Throat, Motor Drive.  
Size A. L. & A. 2" thru  $1\frac{1}{2}$ ", Single End, 36" Throat, Motor Drive.  
No. 000 H. & J.  $\frac{5}{8}$ " thru  $\frac{3}{4}$ ", Single End, 18" Throat, Motor Drive.  
No. 2 H. & J. 1" thru 1", Single End, 15" Throat, Motor Drive.  
No. 7 Beatty  $1\frac{1}{4}$ " thru 1", Single End, 42" Throat, Motor Drive.  
No. 5 Beatty  $\frac{3}{4}$ " thru  $\frac{1}{2}$ ", Single End, 15" Throat, Flywheel Type.  
Rock River  $\frac{3}{8}$ " thru  $\frac{1}{4}$ ", Single End 36" Throat, Motor Drive.

## DUPLICATORS

2 Sizes 8 Thomas Angle Punches with 50" Tables, Motor Drive.  
1 Size 8 Thomas Plate Punch 42" Throat, With Table, Motor Drive.  
1 Thomas Plate, With Kling 72" Throat Punch, Punch Plates up to 60"x120".

## PLATE TOOLS

No. 2 Hilles & Jones Straightening Roll,  $\frac{3}{4}$ " Plate, 50" wide, Motor Dr.  
No. 1 Hilles & Jones Bending Roll, 6"x $\frac{3}{8}$ ", Drop End, Belt Drive.

## CRANES

1—Shaw Crane and 1 Erie Crane: 7½ ton 57' Span, 230 D. C.

## MISCELLANEOUS

Geo. Ohls Press Brake, 10 gauge 10' 6" between housing, Motor Drive.  
Loy-Nawrath Press Brake, 10 gauge 6' between housing, 12" throat, M.D.  
Air Riveters: Wide range of capacity, reach and gap.  
Hammers: Bradley: 75 lb. and 80 lb. Belt Drive.  
No. 5 Heavy Duty LeBlond Plain Mill, Single Pulley Drive.  
LeBlond Heavy Duty Lathe: 21"x8', Quick Change Gears, Belt Drive.  
Lewis Foundry Rail Breaker. Cap. 120 lb. Rails, Motor Drive.  
National  $\frac{3}{4}$ " Upsetter, Motor Drive.

*Wanted for Rebuilding Purpose: Plate Shears,  
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Nos. 2, 2G Brown & Sharpe.  
No. 6 Brown & Sharpe.

## Boring Machines (Hor.)

5" bar NBP. floor type.  
5" bar Newton Portable.  
No. 3 Hamilton, 4 1/2" bar.  
No. 3-A Universal, 3" bar.  
No. 1 Cleveland, 2 1/2" bar.

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24", 36", 42" Bullard, "New Era".  
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1, 2, 3, 4, 6 Spindle L-G.  
1, 2, 3, 4, 6 Spl. Henry & Wright.  
2 and 4-spindle Avey.

## Drills (Mfg.)

25" Weigel sliding head.  
No. 2 Colburn, 1, 2, 3 and 4-spindle.  
Nos. D-4, D-5, D-7 Colburn.  
No. 210 1 & 3 spdl. Barnes.  
20" Barnes, all geared.  
No. 4 Bausch. mult.

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3' Carlton sensitive.  
4' American Triple purpose.  
5' American, full univ., m. d.  
6' Western.  
6' American Triple purpose.

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Nos. 2, 3 & 12 Barber-Colman.  
Nos. 9-H & 18-H G. & E. hob.  
No. 16HS Gould & Eberhardt.  
Nos. 6, 62, 65 Fellows.  
6" Gleason bevel gear.

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Heim Centerless.  
Nos. 10 and 12 B. & S.  
6"x32" Norton.  
10"x18", 24", 36" Norton.  
10"x50", 72", 96" Norton.  
10"x36", 52" Landis.  
14"x36", 50", 72" Norton.  
18"x96" & 18"x120" Norton, m. d.  
20"x168" Landis, m. d.

## Grinders (Univ.)

No. 13 B. & S., cutter & tool.  
No. 2 Bath universal.  
No. 4-12"x66" Landis.

## Grinders (Misc.)

No. 14 Landis, Internal.  
No. 70 Heald, Internal.  
No. 10 Blanchard surface.  
No. 16A Blanchard surface.  
No. 25 Heald rotary surface.  
15"x17"x72" Norton, o. s., surf.  
No. 1 Gardner, hyd., face.  
36"x84" Diamond, hyd. face.

## Lathes

No. 3 L. & S. Duomatic.  
14"x6" American geared head TA.  
16"x8" L. & S.  
18"x8" L. & S. sel. grd. hd.  
18"x10" American geared head.  
20"x8" American geared head.  
20"x22 1/2"x8", 14" L. & S. sel. g. h.  
24"x7 1/2"x12", L. & S. sel. g. h.  
25"-27"x26" LeBlond.  
36"x18" L. & S. Patent hd.  
36"x30" Rahn-Larmon grd. hd.  
54"x23 1/2" Johnson, T. G.  
66"x21 1/2" Putnam t.g., m. d.

## Millers (Plain and Universal)

Nos. 0, 2-B, 3-B, 4-B B. & S.  
Nos. 1 1/2, 2, 2-A B. & S.  
No. 3-B Milwaukee s.p.d.  
Nos. 2 & 3 Cinn. h. p., s. p. d.  
No. 4 Kempsmith Maximiller.  
Nos. 4 & 5 Cinn. h. p., s. p. d.

## Millers (Mfg.)

No. 3 Sundstrand Rigidmill.  
No. 5 48" Cincinnati hydromatic.  
18" & 24" Cincinnati automatic.  
No. 4, & No. 8 Lees-Brad.  
36"x36"x12" Newton Duplex.  
38"x44"x20" Ingersoll slab.  
48"x36"x16" Ingersoll adj. rail.

## Millers (Vert.)

Nos. 1 1/2 & 3-B Milwaukee.  
Nos. 2 & 3 Cincinnati h. p.  
No. 6 Becker vertical.  
No. 5 Brown & Sharpe.

## Planers

24"x24"x12" Gray.  
30"x30"x14" Gray, rev. m. d.  
30"x30"x6", 18" Cincinnati.  
36"x36"x8", 18" Cincinnati.  
36"x36"x12" and 24" Gray.  
36" x 36" x 14" - 24" Cleveland o.s.  
42"x42"x30" N-B-P, Rev. m. d.  
48"x48"x10" Gray.  
48"x48"x14" Liberty, openside.  
48"x48"x16" N-B-P.  
60"x48"x16" Gray max. service.

## Presses

No. 166 Bliss Gap. dbl. crank.  
No. 96-F Toledo, double crank.

## Shapers

16" Gould & Eberhardt, m. d.  
20" & 24" Gould & Eberhardt.

## Turret Lathes

No. 4 W. & S.; Timken bearings.  
No. 1-A Warner & Swasey.  
No. 2-A Warner & Swasey.  
No. 3A Warner & Swasey.  
No. 2-B and No. 3-B Foster.  
No. 4-L Gisholt, 2 1/2 h. s.

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## Drills:

20" Rockwell (Champion) BG PF.  
22" Mechanic BG PGF, sl. hd.  
25" American BG PF, sl. hd.  
25" Gould & E. BG PF, sl. hd.  
26" Barnes, BG PF.  
28" Bickford BG PF sl. hd.  
28" Hamilton BG PF.  
3" Demco DAH, BB, MD.  
Allen Type B, agl. spd. MD.  
Baker, Style F, heavy, elev. table.  
Prentice 4-spindle BB.  
Allen 5-spindle BB.  
Natco Type K, 20-spindle.  
Knight No. 1 Drill & Mill.  
Fosdick 3 ft. radial BD.  
Foote-Burt 4-spd., rail.  
Wells 10-spd., worm gear drive Rail Drills (2).

## Grinders:

Wells, 8x16" Cutter & Reamer.  
No. 6-20 Besly 2-spd., pl. brg.  
No. 220 Badger Auto. Disc. for piston rings, BB.  
No. 1 LaSalle, plain & Surface.  
No. 2 Van Norman Re-Li-O, piston M D.  
Madison, Internal.  
No. 65 Heald, Internal.

## Hammers:

No. 5A High speed, 3" cap.  
No. 4-V-3 Grant, 18" thr. 4" cap., MD.  
40-lb. Perfect, upright.  
40-lb. Bradley, helve.  
800-lb. Bement-Miles, steam.  
1100-lb. B-M, steam (5).  
2500-lb. B-M, steam (3).  
6000-lb. B-M, steam.

## Lathes:

26"x12' Putnam Pacific type; DBG, Semi-QCG, Taper Attmt.; 20" chuck; MD.  
24"x10' Fay & Scott, SBG, PCG, chk.  
18"x8' Lodge & Shipley Patent Hd.  
14"x6' Lodge & Shipley Patent Hd.

## Lathes-Turret:

16" Type A Gisholt, 64" hole in spd.  
24" Type I Gisholt, 4-3/4" hole.  
24" Type I Gisholt, 4-3/4" hole.  
No. 3 Foster, pl. hd.; 1-1/2" hole.  
J & L grd. head, chucking, 2-3/4" hole.

## Millers:

No. 34 Fox hand & power, 18x6x14".  
2" Pratt & Whitney, spline, duplex.  
No. 4B Hendey Lincoln type.  
No. 3B Owen, pl.; vert. attmt. & div. head.

## Planers:

26"x26"x6' Whitcomb, 2 heads.  
30"x30"x6' Whitcomb, 1 head.  
42"x42"x10' Pond, 1 head.  
60"x60"x12' Gray 4 heads.

## Presses-Arbor:

Atlas No. 28 & No. 14.

## Presses-Hydraulic:

Elmes; platen 30x30"; ram 8x5".  
Hydraulic, 10 ft. betw. uprights.  
Elmes 42-ton; ram 12x2"; MD.

## Presses-OB:

No. 61 V&O, 1 1/2" stroke; wt. 950 lbs.  
Nos. 2, 3, 4, 4 1/2, 5, New Loshbough-Jordan, plain.

## Presses-Straight Side:

No. 7 Zeh & Hahneman, geared; wt. 6000 lbs. stroke 1 1/2".  
SG No. 81 Ferracute grd. double crank; wt. 12000 lbs.; stroke 3".  
No. 167, No. 168 Toledo, toggle.  
No. 35 Niagara, Stroke 1 1/2".

## Punches:

No. 6 L & A grd.; 3" in 3/4"; 24" thr.  
Style C Cleveland, grd.; 3/4" in 1/2"; 26" thr.

## Saws-Cold:

No. 4 Higley; cap. 7" round.  
Knowlton; cap. 8 1/2" round; new.

## Saws-Band:

5" Wells metal cutting, MD.  
Racine, 14" with motor.

## Shaper:

16" Barker, cone dr; BG.

## Shears:

Lennox. Bevel, 4" cap.

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3" Rogaco portable electric; pipe.  
2" No. 402 Oster Power Boy, electric pipe.  
4" Murchey double head, bolt.

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2 1/2" & 5 KW Dyer, spot, bch., 220 volt.  
Butt, Federal, 25 cycle.

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6 Sp. ALLEN.  
8 Sp. HENRY & WRIGHT, 12".  
No. 6D MOLINE "Hole hog".  
26" Barnes, 2 Spindle, All Geared.  
22" CINCINNATI, B. G.  
2 Sp. AVEY.  
2 Sp. FOOTE-BURT.  
2 Sp. EDLUND, Power Feed.  
No. 11 PRATT & W., Multiple.  
No. 13 PRATT & W., Multiple.  
No. 1/2 AVEY.

## PRESSES:—New—IN STOCK

DB-14 PEXTO—(2) O. B. I.  
D-16 PEXTO O. B. I.  
Also:  
No. 64 CONSOLIDATED.  
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No. 1 BLISS, Cam.  
No. 4 1/2 W. F. FDRY. Dial Feed.  
LAMB & NASH, 36" SLITTER.

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No. 33 ABRASIVE, Vertical.  
8" HEALD, Rotary,  
No. 22 HEALD, Rotary.  
No. 1 DIAMOND, Surface.  
No. 1 BROWN & S., UNIV.  
No. 11 BROWN & S., PLAIN.  
No. 4 VAN NORMAN INT.  
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No. 4 GARDNER, DISC.  
No. 1 GARDNER, DISC.  
No. 2 NORTON CUT, GRINDER  
No. 1 1/2 CINC. CUT, GRINDER.  
No. 3 B. & S. CUT, GRINDER.  
No. 1 MORSE PLAIN, 6"x20".  
BENCH FILING MACHINES,  
Motor Drive.  
No. 4 HAMMOND POLISHING  
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## LATHES

14"x6' HENDEY, Ser. 22000.  
Taper, Draw-Bar, Collets, Re-  
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12"x6' HENDEY, Taper.  
12"x6' REED-P., Geared Head.

## MILLERS

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No. 3 BROWN & S. VERTICAL.  
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18" CINCINNATI, AUTO.  
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No. 21 B. & S., Automatic Mfg.  
12" B. G. CINCINNATI, MFG.  
No. 2Y BROWN & SHARPE.  
No. 4 BURKE, Power Fd., Bench.  
4 1/2"x12" PRATT & WHITNEY  
THREAD MILLER.  
No. 0Y BROWN & S. MFG.

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4 1/4" GRIDLEY.  
1 1/4" GRIDLEY.  
7/8" GRIDLEY.  
No. 2 BROWN & S., Automatic.  
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No. 2 P. & W. DIE SINKER.  
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## MISCELLANEOUS

No. 40—10 BODINE (Anderson)  
TAPPERS.  
No. 7A—12"x12" RACINE SAW.  
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SAW.  
TOWNSEND RIVETERS.  
MCKENZIE CHIP SEPARAT.  
No. 4 GEOMETRIC THREAD,  
3/4" Cap.  
No. 3—36" B. & S. GR. CUTTER.  
FLATHER CUTTER RELIEV-  
ING MACHINE.

**Machinery Dealers Incorporated**  
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# BARGAINS with SAFETY

## BORING MILLS, Horiz.

- 24" Cleveland, Gear Box M. D.
- 24" N. B. P. knee type.
- 34" bar, Landis No. 35 floor type.
- 34", 54" D & H. floor type.

## BORING MILLS, Vertical

- 24" Bullard, New Era
- 42" Bullard, Power Rapid Traverse.
- 72" Betts heavy duty.
- 72" & 60" Bullard, P. R. T.
- 10' Niles, Pwr. Rap. Trav., M. D.
- 8'-12' Ridgeway Extension Type.
- 10' Pond, h. d., cone.

## DRILLS, Radial

- 4' and 6' Mueller, Gear Box (2).
- No. 2 Aveymatic 2 Spindle.
- 4' Hammond Sensitive.
- 5' Western m. d.
- 25 H. S. and Multiple Drills, etc.

## GRINDERS

- No. 14 Landis Univ. 10"x30".
- 10"x36" Landis Plain (3).
- 12"x36" Landis Plain.
- 6"x32" Norton, self-contained.
- 14"x72" Norton, cylinder, s. c.
- 15"x15"x72" Norton Planer type, sur.
- 48" Badger face, Hyd. Feed.
- No. 2 Diamond 36"x12"
- 64" Diamond, face.
- Nos. 55 & 65 Heald Cylinder.
- 53" Besley Vert. Spin. Disc.
- 14" P & W Surface M. D.
- No. 33 Abrasive Surface (2).

## LATHES

- 11"x3' Seneca Falls, 14"x6' Sidney.
- 16"x6' Hendey; 16x6 Walcott.
- 18"x8' American, Cone, Q. C. G.
- 18"x8' L & S Grd. Hd., M. D.
- 24"x12' Putnam Q. C. G. Cone.
- 26"x11' Boye & Emmes QCG. Cone.
- 26"x21' N. B. P. Cone, Q. C. G.
- 30"x12' Boye & Emmes Cone T. A.
- 32"x12' & 36"x16' Bridgeford M. D.
- 36"x26' L & S cone Q. C. G.
- No. 1 N. B. P. 42" Carwheel.

## MILLERS, Production

- 8" & 12" Pratt & Whitney.
- 28" Cincinnati Semi Automatic

## MILLERS, Vertical

- Model CS Becker Continuous.
- Model B Becker, feeds 36x14x15, spd.
- No. 6 Becker, 62" feed, AC M.D.

## MILLERS, Plain

- No. 3 Cincinnati, grd. hd., P. R. T.
- No. 4 Cincinnati, grd. hd., P. R. T.
- No. 2B Heavy, B. & S.
- No. 1 LeBlond, cone, Cullman m.d.

## MILLERS, Universal

- No. 2 Owen Cone.
- No. 2 Brown & Sharpe Cone.
- No. 2BS Milwaukee Grd. Hd. M.D.

## MILLERS, Planer Type

- Ingersoll adj. rail, 36"x30"x12".

## PLANERS

- 84"x84"x18" N. B. P., M. D 4 hds.
- 72"x60"x18" D & H Openside.
- 48"x48"x10" D & H Openside.
- 48"x36"x16" N. B. P. 2 Hds.
- 48"x36x10" Cincinnati.
- 42"x36"x12" & 24"x6" Cincinnati, M.
- 30"x30"x10" D & H Openside.
- 17"x17"x4" Whitcomb M. D.

## PRESSES

- No. 55 Toledo SS Grd.
- 400 ton Wood Hor. Hyd. Carwheel.
- 400 ton Southwark Hyd. Vert.
- 490 ton N. B. P. Hor. Hyd. Carwheel.

## PUNCHES and SHEARS

- 54" H. & J. No. 2 double end.
- No. 26UD Buffalo Armor.
- No. 1 Buffalo Trpl. Comb'n. Armor.
- 156"x8" Hyde Park, Gap.
- 8"x13/16" & 5"x10 ga. Niagaras.

## ROLLS

- 17"x14" Niles A. C. m. d.
- 12"x14" H. & J. No. 4.
- 10"x14" Bertsch, pyr.
- 8"x14" Pyramid.

## SAWS

- No. 2B Gorton Internal, 74".
- 6" Peerless univ., shaping.
- No. 16 Higley, cold, m. d.
- No. 4B Cochrane & Bly.

## TURRET LATHES

- 4L Gisholt—no cross slide carriage.
- 26" Libby, 74" spindle hole M. D.
- 26" Steinle 64" spindle hole M. D.
- 21" Gisholt 34" spindle hole cone.
- 3x36 & 2x24 Jones & Lamson.
- No. 4 Warner & Swasey, 14".

## MISCELLANEOUS

- 11" Gridley Automatic 4 Spindle.
- 24" Gridley Single Spin. M. D. Auto.
- Nos. 23, 24 & 34 New Britain chkg.
- No. 3 Oilgear Hyd. Hor. Broach.
- No. 3L LaPointe Hyd. Broach.
- Nos. 3B & 4 LaPointe, Screw.
- No. 13H B. & S. Gear Cutter.
- 11" Gleason Bevel Generator M.D.
- Nos. 6B Nazel Hammer M. D.
- 200 lb. Bradley, Helve Hammer.
- No. 3 Mitts & Merrill Keyseater.
- 8" and 6" Saunders, Pipe Machine.
- 8" & 3" Jarecki Pipe Machine.
- 2" Bignall & Keeler Pipe Machine.
- 24" G. & E. Cone Shaper.
- 24", 20", 16" Smith & Mills Cone.
- 20" G. & E., D.C., M. D. Shaper.

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OFFICES: 30 CHURCH ST., NEW YORK CITY

Air Compressors, 4 to 1200 cubic feet.  
 Benders, 15" & 30" Yoder & Quick work.  
 Drills, 1, 2, 3 & 4-spindle ball bearing.  
 Gear Hobber, No. 5-A Lees-Bradner.  
 Grinders, No. 60 Heald Int.; No. 52  
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 Lathes, 14x6 & 16x6, Hendey, Cinc.,  
 Adv. q. c. 16x8, 18x8, 20x8 Monarch,  
 Boye & Emmes, LeBlond q. c. g.,  
 20x10 Prentice, G. H.; Q. C.; T. A.  
 21"x8" LeBlond H. D., Q. Ch. G.  
 Millers, No. 2 Kempnuth Univ. Vert.

Head, No. 35 Ohio Univ. Equip.  
 No. 3 Brown & Sharpe Plain, No.  
 3B Hendy Univ. Div. Hd. Eqpt.  
 Nibbler, No. 1 Campbell 6" Throat.  
 Pipe Threader, 2" Landis G. H., M. D.  
 Planer, 36x36x10' Gray 2 heads.  
 Punch & Shear, No. 52 Beliot, Comb.  
 Punch Presses, No. 81 H Cons. Horn.  
 No. 3 Walsh O. B. I. (2).  
 Screw Mchs., No. 4 W. & S. g. f. h.  
 Shapers, 16, 24, 28" Mil. & G. & E.  
 Welders, 15 & 30 K. W. Butt.

**SEGAL MACHINERY CO.,** 117 Clinton Street,  
 Chicago, Illinois

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No. 4 LeBlond plain cone type.  
 No. 2 Hendey-Norton universal  
 complete equipment.

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No. 416 Baker heavy duty s. p. d.  
 No. 314 Baker HS s. p. d.  
 4—Foote Burt straight line drills,  
 adjustable heads.  
 2—No. 3 Barnes hor. Radial Drills

### GRINDERS

No. 33 Abrasive vert. surf. grinder.  
 No. 14 Pratt & Whitney vertical  
 surface grinder b. b. spindle.  
 No. 11 Brown & S. pl. grinder; SC.

### LATHES

18x8 Hendey GH, MD engine  
 lathe, taper attachment.  
 26x12 Schumacher & Boye belt  
 drive.  
 14x10 Hendey geared hd. engine  
 lathe, MD, TA.  
 2—14x6 American GH, MD en-  
 gine lathes, TA.

### PRESSES

No. 7 Bliss s. s. dbl. crk. press, 8"  
 str., 73" between uprights, SBG.  
 2—No. SRG—102 Ferracute dbl.  
 crank, back geared presses; 41"  
 between housings.

### MISCELLANEOUS

No. 3 1/2 Baker Bros. Keyseater.  
 36x36x12' Cleveland openside  
 planer, two heads on cross rail.  
 36x36x12' Bickett DH planer, 2 hds.  
 No. 26 Williams & W. Bulldozer.  
 Over 750 machines in stock. Let us quote on your requirements.

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252 St. Aubin Avenue, Detroit, Mich.

# High Grade Machine Tools

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36"x14' Boye & Emmes, cone, g. c.  
 36"x20' Bradford cone, Loose Chge.  
 28"x48"x10' Harrington, Slid. Bed.  
 26"x14' Bridgeford Grd. Hd. S.P.D.  
 32"x16' Bridgeford Grd. Hd. S.P.D.  
 42"x18' Bridgeford Grd. Hd. S.P.D.  
 24"x10' Greaves Klusman Grd. Hd. S. P. D.  
 24"x10' American Grd. Hd. S.P.D.  
 26"x16' Bradford Cone Drive. Q. C.  
 20"x10' Lodge & Shipley 3SCD QC.  
 16"x10' LeBlond 3 SCD,DBG,QC.

## Grinders

16"x52" Landis self contained.  
 No. 2 Brown & Sharpe Universal.  
 16"x48" Landis Crankshaft.  
 16"x48" & 72" Landis Crankshaft.  
 Type A Production Abrasive Finishing  
 Nos. 50, 55, 60, 65 and 70 Heads.  
 6"x18" Landis Plain, Self Contained.  
 10"x52" Landis Plain, Self Con.  
 Rivett Internal Grinder.

## Gear Cutters

No. 3, 26" Brown & S. Gear Cutter.  
 Nos. 1, 2, 4 Adams Farwell Gear Hb.  
 18-H Gould & Eberhardt Hobber.  
 6", 11", 18" Gleason Gear Generators.  
 No. 6 Fellows Gear Shaper.  
 No. 3-36" B&S Gear Cutter.  
 No. 5-60" Newark Gear Cutting Machine.

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 8x8x1" H. & I. Angle Sh. on turntbl.  
 10" Streine Square. Shear 16 ga.  
 12" Cox Pipe Cutting & Thread mch.  
 Lennox Rotary Bevel Shear,  $\frac{3}{4}$ " cap.

84" Niles Vertical Mill, B. D.  
 30" Bullard Mill, Turret Head.  
 48x1" L. & A. Pl. Sh. on turntbl. m.d.  
 300 amp. Lin. Port. DC Arc Welder.  
 Lewis Alligator Shear, cap. 1 $\frac{1}{4}$ ".  
 10ton Hand pwr. trav. Crane 46'8" span.  
 H&J S.E. Punch 62" Th. cap. 1 $\frac{1}{2}$ x1 $\frac{1}{4}$ "  
 4" Merrell Pipe Cutting & Thread Mch.  
 20"x10" Hendey Lathe dbl. friction CS.  
 No. 3 B. & S. Automatic Gear Cutter.  
 3 $\frac{1}{2}$ " Ajax iron bed Forg. & Upset. Mch.  
 72" Bullard Vert. Bor. Mill D.C.M.D.  
 20" American back-geared Shaper.

**Russell Machine Co., 438 Oliver Bldg., Pittsburgh, Pa.**

## Exceptional Values

No. 4 LeBlond Heavy Duty Plain Miller, S. P. D.  
 No. 3 LeBlond Plain Miller, cone drive.  
 18", 20" and 24" G. & E. Shapers, gear box, S. P. D.  
 20" Stockbridge Shaper, cone drive.  
 27"x19" American, G. H., M. D.  
 18"x8" Reed Prentice Geared Head Lathe, S. P. D.  
 No. 11 B. & S. Plain Grinder, overhead M. D.  
 No. 3 B. & S. Universal Grinder, overhead belt drive.  
 6" American Plain Radial Drill M. D. on arm.  
 4 $\frac{1}{2}$ " Morris Radial—S. P. belt drive through gear box.  
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Brinnell Hardness Testing Machine 6" gauge,  
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- 1—No. 3-B Milwaukee Double Over-arm Plain Miller, single pulley dr.
- 1—No. 3 B. & S. Plain Miller, cone drive.
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- 2—No. 4 Round Over-arm Cincinnati Plain Millers, rapid traverse.
- 1—No. 5 Cincinnati Plain Miller, round over-arm rapid traverse.
- 1—No. 5 Cincinnati Rect. over-arm, plain feed in knee.
- 3—No. 12 B. & S. Plain Mfg. Millers.
- 1—No. 33 B. & S. Automatic Miller.
- 2—No. 4 48" Cincinnati Auto. Duplex Millers, m. d.
- 1—No. 3 Becker Vert. Miller, cone drive.
- 1—60x60x14" Cincinnati Spur Geared Planer, 4 hds., m. d.
- 1—48", widened to 72"x16" Cincinnati Spur Geared Planer, 4 hds., reversing m. d.
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### Rebuilt—Guaranteed

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- 1—4000 amp 6/12 v Burke.
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All cap., 720 KW down.

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25-Screw Machines, Auto. and Hand.  
Gear Hobbers, Square Shears, Bulldozers, Hack Saws, Plating Generators, Buffers, Rivet Hammers and Spinners, Motors, Belting, Shafting and over 1000 Machine tools on our floors. Send us your inquiries.

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6"x32" Norton plain grinders, very good (2).

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Several Cleveland automatics, from 3/8" bar and up — one 2" Model A double cross slides.

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### MILLING MACHINES

No. 3A, B. & S. Univ., m. d. Comp.

No. 3 Cincinnati plain.

No. 2A Hendey Norton plain.

No. 4B Becker, Vertical.

Pratt & Whitney bench.

### LATHES

20"x8" Hendey geared hd. q. c. g.; m. d. taper attachment, two chucks.

16"x8" Reed Prentice q. c. g. Timken bear; motor in base taper attach.

28"x12" Boye & E. q. c. g.; taper att.

18"x10" Boye & E. q. c. g.; taper att.

18"x8" Boye & E. quick change gear.

16"x8" LeBlond q. c. g. chucks.

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High-Speed B. B. Drills 1 to 6 spdl.

24" Snyder back grd. power feed.

No. 2 Avey, 14 1/2" overhang.

Avey and Allen Bench.

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17" Smith & Mills, back geared.

20" Ohio back geared.

### MISCELLANEOUS

Springfield Oil Separator, 1 bushel.

Screw Press, R. & K. frict. pwr. drive.

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High Speed Riveting Hammers.

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**GRINDERS:** Bath Univ. Cyl.  
10x24" Landis Plain Cyl.  
6"x32" Norton Plain Cyl.  
No. 12 Bryant, m. d., cheap.  
No. 72 Heald Hydraulic.

**LATHES:** 24"x11" Cisco, Hy-D.  
18"x8" Whitcomb-Blaisdell.  
21"x12" LeBlond, taper att.  
18"x8" Boye-Emmes.  
14"x5" South Bend.  
14"x6" Springfield, taper att.

652 West Willis Ave.,

**TURRET LATHES:**  
No. 5 Foster univ., late, bar equip.  
No. 2-4-6 Warner & S. plain.  
No. 6 W. & S. univ., bar equip.

**MILLS:**  
No. 4-H LeBlond, s. p. d.  
No. 5-B Becker vert., pow. fd. to hd.

**MISCELLANEOUS:**  
No. 2-B Nazel Hammer, inc. motor.  
Shuhardt & Schutte Gear Hobbers.  
15&30 ton Lucas Forcing Presses.

Detroit, Michigan

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10" Betts, grd. feed, m. d. 2 sw. hds.  
62" Bullard, Standard, m. d.  
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53" N. B. P. Rapid Traverse, M.D.

### Boring Mills—Horizontal

44" Bar, NBP, No. 72 Duplex m. d.  
34" Bar, Landis, No. 35, motor dr.

### Grinders and Millers

14"x72" Norton, Plain, M. D.  
Model CS Becker, Continuous, Vert.

### Lathes

66"x30" Johnson, cone dr., hvy. duty.  
28"x18" Chard, cone drive.  
29"x18" Chard, motor drive.

### Planers & Slotters

120"x96"x26" D & H, Openside.  
96"x96"x20" D & H, Rev. m. d. 4 hds.,  
Rap. Traverse.  
72"x60"x18" D & H, Openside.  
24" NBP Crank Slotter, motor dr.

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No. 2014 V&O thread roller & trim.  
No. 4 Niagara power dbl. seamer.  
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No. 1 Sidney open back inclinable.  
Artos Stripping off Mche. for wire.  
42" Rotary Board cutter.  
4—Spindle Taylor & F. drill press.  
36x36x8 Sellers Planer.

30" Bullard Vertical boring mill.  
Model D Becker Vert. milling mch.  
50 lb. Automatic drop hammer.  
60" Quickwork rotary shear.  
No. 248 Pexto lever shear.  
No. 1 Baird tumbling barrel.  
4" Marsh stencil machine.  
No. 11 Yates-Amer. gang rip saw.  
13" & 22" Fox hand mitre trimmer.  
No. 14-B Hi-Speed rivet hammer.  
No. 86, 81 & 120 Grant rivet spinner.  
No. 1 Campbell Nibbler.  
42" Pexto Power grooving machine.

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2" Greenfield Bolt Cutter.  
1½" Greenfield Bolt Cutter.  
1" Landis Bolt Cutter.  
36" Bullard Boring Mill.  
3" Dreses Radial Drill.  
4" Dreses Radial Drill.  
5" Dreses Radial Drill.

6" American Radial Drill.  
24"x10" Lodge & Shipley Lathe.  
21"x8" LeBlond Lathe.  
20"x10" Hendey Lathe.  
16"x8" LeBlond Lathe.  
14"x6" LeBlond Lathe.

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# GOOD USED MACHINES

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51" Niles, 42" N-B-P., 2 hds.  
42" Gisholt, Turret Head.  
2½" Lucas, 4" Fossdick horiz.

## LATHES

14"x6" Bradford, relieving attach.  
16"x8" Monarch, Q. C.  
24"x12" New Haven, Q. C.  
26"x14" Putnam, Q. C.  
40"x18" Prentice, raised to 52½".

## PRESSES

Nos. 074 and 62 Consolidated.  
8" Robinson, No. 164 Toledo toggle.  
No. 5 Toledo grd., No. 723 Toledo.  
No. 6 Niagara, O. B. I.  
No. 175-A Consolidated Str. Side.

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16" Milwaukee, cone drive.  
26" Smith & Mills, friction drive.  
No. 6-60" B. & S. Gear Cutter.  
Bilton gear cutter.  
15" Potter & Johnston, tool room.

## MILLING MACHINES

Nos. 3B, 5B B. & S. plain.  
No. 34 Oesterlein, No. 1½ Am., pl.  
No. 1 Milwaukee, single pulley.

## TURRET LATHES

Nos. 2-A & 3-A W. & S. Hi.-Hd.  
6½" Gisholt, motor driven.  
2" Warner & Swasey.

## METAL WORKING MACHINERY

12"x15" Racine H. S. Saw.  
11"x14" Worthington Air Compressor with motor.  
2½" Landis Bolt Cutter, lead scr.  
3" Acme Bolt Cutter, Landis hd.  
24"x6" Gray Planer.  
48"x10" Belmer Planer, 4 heads.  
4" Mueller, 6" American radial, s.p.

## GRINDERS

Thompson Universal.  
Webster & Perks 10"x24" cyl.  
Churchill vertical spindle.  
No. 2 Cincinnati Plain.

## The Norton-Broadway Machinery Co.

610 Baymiller St., Cincinnati, Ohio

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LeBlond Engine lathes—Cone drive  
16x6, 17x12, 18x8, 21x10.

LeBlond Rapid Production Geared Head Lathe  
17x6.

Lodge & Shipley Engine Lathe 20x10.

No. 1—B & O Turret lathe. Geared head.

No. 4—Warner & Swasey Turret Lathe. Cone drive, bar feed, power feed on turret.

No. 4 Foster Turret Lathe—cone drive, bar feed on turret and cross-slide.

No. 7 B. & O. Turret Lathe—Cone driven.

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## HIGH GRADE MODERN MACHINES

16", 24", 32" G. & E. Shapers, m. d.  
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3A Univ. Horiz. Boring Mill 3" bar.  
3" Cinn. Bickford radial drill, m. d.  
No. 2 Cinn. h. p. univ. Miller, comp.  
Model M 1 1/2 Clev. Auto. 4 spdl. m. d.  
4" P. & W. Spl. Miller arr. for m. d.  
1 1/2 BMilw. arr. for m. d., vertical hd.  
500 lb. Bradley upr. hammer m. d.  
1-2-4-6 spdl. high speed drill presses.  
No. 3 Holmes tilt. auto. tap. 1" cap.

### GRINDERS:

10x24 & 6x32 Norton Ext. m. d.  
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16x52 Landis Ext.  
No. 3 B. & S. Univ. Ex.

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20 ton General flex. m. d.  
No. 33 Cons. arch press.  
164 Cons. 5" stroke.  
33P Toledo Geared.  
30" Rot. Tbl. hand or pwr. take off.

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16"x10' Sidney Lathe, geared head, arranged for motor drive, with motor.  
3' American Radial Drill, arranged for motor drive through gear box.  
No. 2 Cincinnati Plain Mill, countershaft.  
No. 3 Cincinnati Plain Mill, high power, single pulley drive.  
12" Cincinnati Production Mill, arranged for motor drive.  
6" Campbell Nibbling Machine, S. P. D.  
3 spindle Edlund H. S., B. B. Drill Press, power feed to each spindle.

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12"x6' Monarch, quick change. | 20"x10' Bradford.  
16"x8' Hamilton, quick change. | 24"x24' Prentice.  
18"x8'; 21"x10' South Bend, new. | 21"x10' LeBlond extra heavy duty

### TURRET LATHES and SCREW MACHINES

Nos. 1 and 3 Woods-tilted. | 1 1/2" cap. Smurr & Kamen.  
Nos. 52, 53, 55 Nat'l Acme auto. | 21" and 24" Gisholt.

### SHAPERS

16" B. G. Queen City. | 24" Barker.  
20" Smith & Mills. | 14" Niles travelling head.

### DRILLS

Baush No. 1, multiple spindle. | 6' ceiling.  
32" Hoefler, sliding head. | 4, 24" Foote-Burt, single base.

### MILLING MACHINES

No. 2 Cincinnati Universal. | No. 2 Brown & Sharpe, heavy.  
No. 4 LeBlond plain. | 24"x20"x8' Ingersoll.

### MISCELLANEOUS

Band saw, Clark, compound. | Press, Cam Drawing, No. 24 Toledo  
Gear miller, No. 1 Bilton. | Sand Blast, Boland.  
Planers, Gray, 36" and 42". | No. 20 Bryant grinders (5).  
Press, No. 2 Toledo O. B. I. | Press, No. 75 O. B. Toledo.

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THE  
MACHINERY Dept. H. COMPANY  
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60" Gisholt. | 36" - 44" Niles - Bement - Pond  
48" Colburn. | Vertical Turret Lathes.  
24"-36"-42" Bullard New Era | 4 1/4" Bar NBP. Duplex Control.  
Vertical Turret Lathes. | 60" Bullard.  
96" Cincinnati.

### MILLING MACHINES

Nos. 5, 4, 3, 2 Cincinnati, Plain. | No. 2 Cincinnati Univ. grd. head  
No. 1 Kempsmith Universal. | No. 15 Garvin Vertical.

### RADIAL DRILLS

8' Cincinnati-Bickford Enclosed Head, Motor Drive.  
3 1/2" and 3' Carlton, S. P. D.  
3 1/2" Dreesa.

### LATHES

20"x10' Lodge & Shipley. | 28"x18' Chard.  
36"x16' Fitchburg.

### MISCELLANEOUS

Turret lathe, No. 5 Foster Universal.  
Turret Lathes, 7 1/2"x26" Libby hollow spindle.  
Turret Lathes, 6 1/4" hollow spindle x 24" Gisholt.  
No. 3 Bryant Internal Grinder.  
Grinders, Nos. 1 and 3 Brown & Sharpe Universal.  
Grinder, No. 10-6"x20" Brown & Sharpe Plain Self-contained.  
Grinder, No. 16" Blanchard Belt Drive 26" chuck.  
Shear, No. 2 Hilles and Jones Gate, 28" gap, 74"x1 1/4".  
Gear Generators, 8" Gleason Spiral Bevel.  
Planer, 60"x54"x16" Woodward & Powell, three heads.  
Shaper 16" Gould & Eberhardt, Motor Drive.

**SUN MACHINERY COMPANY, INC.**  
35 Van Buren St., NEWARK, N. J.

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## BORING MILLS

36" Niles vertical, 2 heads.  
60" Vertical Mill, 2 heads.

## GRINDERS

Diamond surface 16" x 45" table.  
Double disc grinders—all sizes.

## LATHES

14" x 6' Rockford q. c. Tool Room.  
14" x 6' Lodge & Shipley q. c.  
16" x 8' Monarch geared head m. d.  
18" x 10' L. & S. sel. grd. head, (3).  
26" x 12' Bridgeford, q. c.  
30" x 14' Niles S. B. Grd. Cone.  
30" x 20' Niles S. B. Grd. Cone.  
36" x 14' American triple geared.  
24" x 22' Lodge & Shipley q. c.  
32" x 12' Boye & E., cone head q. c.  
36" x 36' LeBlond q. c. motor drive.

## PRESSES

No. 4 & 5 Consolidated inclinable.  
No. 21 & 21½ Bliss inclinable.

## WELDERS

30 k. w. National spot, 36" arms.  
10 and 12 k. w. Federal, Jr. & Amer.

## PLANERS AND SHAPERS

32" Cincinnati Shaper Motor Drive.  
20" Cincinnati Shaper Cone Drive.  
36" x 12' Gray Planer 2 Heads.  
36" x 14' American Planer 2 Heads.  
42" x 14' N.-B.-P. Planer 3 Heads.

## MILLING MACHINES

No. 3 Kemp. univ. 3 step cone, d. b. g.  
No. 34 Oesterlein plain, cone drive.  
No. 2 B Hy. Brown & Sharpe m. d.  
No. 4 LeBlond plain 3 step cone.  
No. 6 Becker vertical, rotary table.

## MISCELLANEOUS

24" Cincinnati Bickford Drill Press.  
Bolt cutter, 1½" & 2" Acme.  
Gear cutters, Nos. 3, 4 B. & S.  
Hack saws, 12x15 Racine.  
No. 1 LeBlond Tool & Cutter Grnd.  
Radial, 4' Hammond, sensitive.  
Radial 6' Dreeses, s. p. drive.  
Straightening rolls, 54" H. & J.  
Bending rolls, 8' x 1½" Niles.  
16" x 66" Landis Plain Grinder.

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**The Jones Machine Tool Co.**  
Front & Pike Sts., Cincinnati, Ohio

## WRITE US—WE CAN LOCATE IT

Bolt Threaders, 1" Acme.  
Brake, 6', 3/16" cap. Power.  
Drills, 1, 2, spdl., ball bearing  
Avey; 20", 25" & 28" Barnes b. g.,  
p. f.; 24" Cin. s. h., b. g., tap. att.  
Gear Hobbers, No. 5A Lees Bradn.  
Grinders. 26" Badgerdisc, ball bearing;  
No. 82 Greenfield Hydrolil  
Internal; 16" x 30" Landis, plain;  
16" x 32" Landis crankshaft.  
Hacksaws, Nos. 1, 2 Marvel; 6x6.

Cincinnati plain; No. 2 Kemp Smith  
universal; No. 3 B Hendey univ.;  
No. 35 Ohio, univ.; 24" Cin. auto.  
Nibbler, No. 1 Campbell.  
Planer, 36" x 10' Gray, 3 heads.  
Punch presses, o. b. i. No. 20 Bliss;  
No. 2½ Toledo; No. 5½ Walsh.  
Punch presses, Nos. 1 & 1½ Bliss  
cam draw; Horning; No. 23 Cons.  
Punch & Shear, No. 53 Beliot.  
Pipe machine, 2" Landis, grd. hd., md.

## SPECIALS

No. 5 CINCINNATI rectangular overarm Milling Machine, m. d.;  
12"-14"-16" HENDEY Lathes, taper attachment; 3" UNIVERSAL  
Horizontal Boring mill, m. d.

9x9 Peerless.  
Lathes, 16" x 10' Hendey, taper att.,  
16" x 10' Seneca Falls, q. c. g.; 17" x 8'  
LeBlond grd. hd., m. d.; 18" x 8'  
Boye & Emmes, q. c. g.; 20" x 8'  
American q. c. g.; 16" x 8' Monarch,  
q. c. g.; 20" x 8' Monarch, q. c. g.;  
20" x 10' Prentice grd. head; 24" x 12'  
S. & B. q. c. g. taper att.  
Millers, 12" Cincinnati B. G.; No. 2

Screw mchs., Nos. 4 and 6 W. & S.  
Shapers, 14" to 28" G. & E., s. p. d.  
7" Rhodes comb. with slotter.  
Shears, 30" Bertsch corrugating; No.  
05 Niagara ring & circle, m. d.  
Thread Miller, 6x80 Pratt & W.  
Welders, arc, 220 Amp. USL.  
Welders, butt, 15 K. W. Toledo.  
Welders, spot, 5 K. W. Dyer, 10 &  
15 K. V. A. Taylor; 35 K. W. Toledo.

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**Grinders**, No. 72 Heald, M. D. Hyd. Feed. (3)  
**Grinder**, No. 3 Wilmarth & M. surf.  
**Grinder**, 53<sup>rd</sup> Gardner, Verti. m.d., with automatic feed.  
**Grinder**, No. 3 Abrasive Surface.  
**Grinder**, No. 33 Abrasive surface.  
**Grinder**, Heim Centerless, m. d.  
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**Lathe**, 18"x8" Hendey, B. M. D.  
**Lathe**, Turret, No. 6 W. & S. Univ.  
**Mill**, 2 1/2" Cleveland Horiz. Boring.  
**Mill**, No. 3 GH Hendey Univ., s. p. d.  
**Nibbler**, No. 236 Gray, B.M.D.  
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**Planer**, 36"x36"x14" Liberty Motor Drive, 3 heads, Double Housing.  
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**Press**, No. 66 Bliss, S. S., Tie Rod.  
**Press**, No. DG53 Ferracute S.S. (3)  
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**Press**, 50 ton Henry & Wright, m.d.  
**Shear**, 10', 1/4" United Eng'g. m. d.  
**Shear**, 10', 3/8" Pittsburgh, m. d.  
**Shear**, No. 736 Nia., 36", 3/8" cap.  
**Slotters**, Betts, 16" motor drive.

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100 H.P. West. CS, 720 R.P.M

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75 H.P. Gen. E. IM, 600 RPM

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Hendey YH 18"x8" quick change  
lathe, c. d.  
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McCabe 50—27" dble. spindle Lathe,  
d. c., m. d.

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24" Cincinnati, b. g., cone drive.  
22" Ohio, b. g., cone drive.  
20" American b. g., s. p. d.  
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12" Smith & Mills plain crank, b. d.

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Fosdick No. 2-A horiz. floor type bor.  
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Universal 3" dia. bar, hor. bor. mill, m. d.  
Lucas 4" dia. bar horiz. boring mill, m. d.  
Grand Rapids No. 4 drill grinder, m. d.  
Bertsch 10"x10" Press Brake, motor dr.  
American Can Co. No. 20. b. i. Press b. d.  
Toledo No. 3 o. b. i. Press; b. d.  
Bliss No. 465 gap shear; ¼"x8"; m. d.  
Niagara 10"x14 ga. squaring shear, m. d.  
J. & L. 2 spdl. turret lathe, g. hd.,  
chuck, s. p. d.  
B. & O. No. 8 turret lathe, bar, b. d.

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m. d. (2).

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Cincinnati Nos. 4, 3, 2 pl.; cone dr.  
Cincinnati No. 3 univ. p. f.; cone dr.  
Becker No. 6 vert cal h. d.; cone dr.  
Brown & S. No. 1Y PL Miller Cone Dr.  
Brown & S. No. 0Y PL Miller cone dr.  
Garvin No. 12 Miller; c. d.

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B. & S. No. 11 plain cylindrical; b. d.  
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Ott No. 8 plain cyl. Grinder; 6"x18";  
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Modern 12"x24"; pl. cylindrical; b. d.  
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3½" Cincinnati-Bickford RC radial,  
d. c., motor drive.  
Mueller 4" radial, extend. column, s. p. d.  
Fosdick 5" box column radial, s. p. d.  
Colburn No. 4 hi duty; m. d., A-1.  
Colburn No. 2 hi duty; t. & l. pul. dr.  
Baker No. 310 hvy. duty, belt driven.  
Foote-Burt hd. prod. 4-spin. drill; pf;  
s. p. d.  
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Foote-Burt 4-spindle rail type; b. d.  
Barnes camel back 2-spindle; belt dr.  
Barnes 3-spindle 20"; p. f.; belt dr.  
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333 West Fourth St.,

Est. 1886

Cincinnati, O.

# Index of Advertisers

Aaron Machinery Co.	161	Davis Machinery Co.	168
Abart Gear & Machine Co.	125	Dayton Rogers Mfg. Co.	119
Acme Industrial Co.	85	Delta Equipment Co.	196
Ajax Flexible Coupling Co.	116	Delta Mfg. Co.	101
Alamo Engine Co.	190	Desmond-Stephen Mfg. Co.	94
Allsteel Press Co., Inc.	69	Dreis & Krump Manufacturing Company	Inside Back Cover
American Hollow Boring Co.	116	Dumore Company.	102
American Tool Works, Inc.			
Ames Co., B. C.	159	Eastern Machinery Co.	174-175
Anderson Bros. Mfg. Co.	129	Economy Machinery Co.	166
Apex Machine Co.	39	Euler Engineering Co., Inc.	138
Armco Company	127	Emmerman, Louis E.	198
Armstrong-Blum Mfg. Co.		Erie Electric Motor Repair, Inc.	172
	Inside Front Cover	Errington Mechanical Laboratory	98
Armstrong-Bray & Co.	138	Easley Machinery Co., E. L.	190
Armstrong Bros. Tool Co.	53	Etico Tool Co.	96
Atlantic Company	149		
Atlas Press Co.	111	Failor-Strafer Machinery Co.	170
Avey Drilling Machine Co.		Falk Mill Supply Co., Inc.	168
		Federal Press Co.	67
Baldor Electric Co.	91	Federal Products Corp.	41
Baumbach Mfg. Co., E. A.	151	Flynn Manufacturing Co.	
Beatty Machine & Mfg. Co.	177	Foster Machinery Co.	161
Belyea Company	162	Fris & Miller	121
Bennett-Raffin Machinery Co.	181		
Bernstein & Co., Geo. M.	191	Gairing Tool Co.	55
Beverly Throatless Shear Co.	126	Galland-Henning Mfg. Co.	31
Blackmer Pump Co.	130	Gallmeyer & Livingston Co.	5
Bleser Mfg. & Mch. Co.	170	General Blower Co.	171
Bradley Machinery Co.	198	Gibbs Steel Co.	194
Brandt Machinery Sales	166	Gits Bros. Mfg. Co.	118
Breuer Electric Co.	75	Goldman, Harvey H.	201
Brewster Company, Inc.	125	Goldsher Machinery Co.	161
Brown Machinery Co.	179	Graham Manufacturing Co.	157
Brown & Sharpe Mfg. Co.	37	Grant Mfg. & Machine Co.	159
Brownell Machinery Co.	166	Greene, Tweed & Co.	109
Buffalo Forge Co.	10-11	Grinding Machinery Co.	119
Burke Machine Tool Co.		Grobet File Corporation	140
Burns Machinery Co., F. W.	187	Grob Brothers	
Burns, Joseph M.	133		
Burr & Son, J. T.	132	Hamilton Tool Co.	134
		Hammond Machinery Builders	63
Carlson Mfg. Co., C. H.	130	Hanna Engineering Works	206
Carroll Mfg. Co., L. W.	140	Hardinge Brothers, Inc.	Front Cover, 6
Carroll & Son, Wm.	130		
Central Electric Co.	168	Hartford Special Machinery Co.	120
Challenge Machinery Co.	123	Haskins Co., R. G.	16, 21
Chicago Die Casting Mfg. Co.	141	Hassal John, Incorporated	157
Chicago Electric Co.	193	Henry & Wright Mfg. Co.	
Chicago Rawhide Mfg. Co.	149	Heuser Manufacturing Co.	
Chicago Rivet & Machine Co.	106	Hill-Clarke Machinery Co.	178
Chicago Wheel & Mfg. Co.	104-105	Hobart Bros.	26
Cincinnati Mch. & Supply Co.	183	Hotel Barlum	128
Cleerman Machine Tool Co.	73	Howarth Machinery Co., C. C.	198
Clements Mfg. Co.		Hyman & Son, Joseph	164
Clinton Machinery Co.	195		
Colonial Bushings Co.	81	Illinois Testing Laboratories, Inc.	143
Continental Mch. Specialties, Inc.	93	Indianapolis Machinery & Supply Co.	197
Conway Clutch Co.	44		
Commercial Centerless Grinding Co.	136	Industrial Machinery Co.	189
Cullman Wheel Co.	Back Cover	International Machinery Co.	170
		Interstate Machinery Co.	137, 173
		Iroquois Machinery Co.	192

## Index of Advertisers—Continued

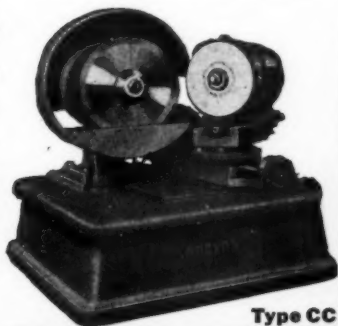
Janette Mfg. Co.	131	Pier Equipment Co.	30
Johnson & Sons Mch. Co., Wm. C.	164	Plunket Machine Co.	153
Johnson Tool Co.	126	Porter Machine Co.	138
Jones & Lamson Machine Co.	12	Porter-Cable Machine Co.	22
Jones Mch. Tool Co., Cincinnati	200	Pratt & Whitney, Div., NBP Co.	46
		Precision Tool Co.	38
Kamis Machinery Co.	172	Printz Electric Co.	135
Kinsey Co., E. A.	202	Procurier Safety Chuck Co.	24, 25
Klauber Machinery Co.	172	Production Machine Co.	153
Koch Test Indicator	140	Progressive Tool & Cutter Co.	77
		Pruitt Machinery Co.	161
L-W Chuck Co.	103	Putnam Tool Co.	23
Lake Machinery Co.	194	Pyrometer Instrument Co.	126
Land, L. J.	201	R & L Tools	8-9
Lang Machinery Co.	169	Racine Tool & Machine Co.	128
Lenney Mch. & Mfg. Co.	36	Rasmussen Machine Co.	122
Lewitwaite Machine Co., T. H.	129	Reich Mfg. Co., J. R.	160
Libert Machine Co.		Reliance Machinery Sales Co.	171
Lincoln Electric Co.	35	Rickert Shafer Co.	100
Linley Bros. Co.	147	Ridge Tool Co.	115
Littell Machine Co., F. J.	114	Rigid Tool Holder Co.	124
Lovejoy Flexible Coupling Co.	134	Riverside Machinery Depot	182
Lucas & Son, J. L.	191	Rivett Lathe & Grinder, Inc.	4
Luma Electric Equipment Co.	145	Robbins Engineering Co.	61
		Rockford Iron Works	71
M-B Products	133	Rogers & Co., Samuel C.	205
McDonald Machinery Co.	171-185	Rogers Mfg. Co., Dayton	119
McMahon Co., Frank	132	Rosenkranz, Weinberger & Co.	196
Machinery Dealers, Inc.	180	Ross Operating Valve Co.	90
Mall Tool Company	83	Rotor Air Tool Co.	65
Marr-Galbreath Machinery Co.	165	Russell Boring Bar Co.	134
Martin Tool & Die Works, J. E.	124	Russell Machine Co.	192
Master Machine & Tool Co.	121	Ruthman Machinery Co.	131
Meylan, A. R. & J. E.	138	Schauer Machine Co.	112
Midwest Equipment Co.	192	Scherr Co., George	155
Midwest Tool & Engineering Co.	132	Scott-Bansbach Machinery Co.	163
Miles Machinery Co.	176	Scully-Jones & Co.	20-192
Modern Collet & Machine Co.	18-19	Segal Machinery Co.	182
Modern Machine Corp.	160	Seneca Falls Machine Co.	128
Molitor Machry. Co., Chas. A.	194	Service Co.	170
Moorhouse, Frank K.	170	Sheldon Machine Co.	95
Morey Machinery Co., Inc.	184	Siewek Tool Co.	28
Morrison Machine Products, Inc.	7	Simmons Machine Tool Corp.	189
Morton Machinery Co.	168	Skilaw, Inc.	51
Motor Repair & Mfg. Co.	194	South Bend Lathe Works	40
Moyer, J. N.	196	Speedway Mfg. Co.	
		Stackbin Corp.	110
National Machine Tool Co.	114	Standard Electrical Tool Co.	136
Nicholson & Co., W. H.	88	Standard Machinery Co.	168
Nielsen, Inc.	123-143	Standard Machine Co.	169
Norgren Co., C. A.		Standard Pressed Steel Co.	34-89
Norton-Broadway Machinery Co.	197	Standard Shop Equipment Co.	135
		Stanley Works	45
O'Brien Machinery Co.	164	Star Machine & Engineering Co.	155
Odin Universal Corp.	49	Steege Machinery Co., W. L.	
Ohio Machinery & Supply Co.	171	Sterling Products Co., Inc.	29
Oliver Instrument Co.	43	Sterad & Co., N. A.	15
Oliver Machinery Co.		Snipit Corporation	136
Osborne & Sexton Mch. Co.	199	Strong, Carlisle & Hammond Co.	193
Ott Machinery Sales, Inc.	162	Sturdimatic Tool Co.	147
		Sun Machinery Co.	199



## Index of Advertisers—Continued

Sunnen Products Co.....	27	Wain Machinery Sales, Chas. E. 169
Surplus Stock & Mch. Co., Inc. 198		Walls Sales Corporation..... 118
Sutton Tool Co.....	79	Walker-Turner Co. Inc..... 108
Swedish Gage Co. of America... 137		Walton Co. .... 141
Tannewitz Works.....	132	Wardwell Manufacturing Co.... 120
Taylor Machine Co.....	145	Weldon Tool Co..... 3
Temco Electric Motor Co. .... 99		Wells Manufacturing Corp..... 107
Titan Tool Co.....	113	Wertman Machinery Co..... 166
Toman & Co.....	131	Western Machine Tool Works... 57
Tomkins-Johnson Co.....	14	Western Tool & Mfg. Co..... 136
Triplex Screw Co.....	92	West Penn Machinery Co..... 167
United Machinery & Supply Co. 166		White Dental Mfg. Co., S. S. ... 97
Universal Engineering Corp... 112-127		White Machinery Co., A. D.... 195
Universal High Speed Tool Co... 13		Whitney Metal Tool Co. .... 17
Universal Tool & Machine Co. .. 130		Wigglesworth Machinery Co.... 166
Universal Power Corp.....	160	Wilson, K. R..... 117
Used and Rebuilt Machinery 161-202		Wittek Manufacturing Co..... 87
Vacuum Cup Metal Pulley Co... 140		Wodack Electric Tool Corp..... 126
Valley Electric Corp.....	122	Wolnick Machinery. Co. .... 161
Victor Machinery Co.....	200	Wyzenbeek & Staff..... 32-33
Victor Machinery Exchange..... 186		Yost Mfg. Co. .... 160
Vinco Tool Co.....	42	
Vine, R. A.....	196	
Vonnegut Moulder Corp.....	59	

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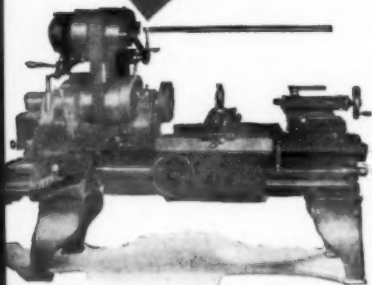
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